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Planning and Implementation at the district level

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EDITORIAL - SOME HIGHLIGHTS

I General Economic Scene

State

Climate & Prices

As reported in the last issue (p. 741), the dry spell was broken at the end of September and heavy rains continued during the first week of October, leading to the Department of Meteorology announcing that the North East monsoon, which normally starts in the third week of October, had started this year some two to three weeks in advance. The non stop heavy rains in Coimbatore district resulted in floods in which 1,000 huts were washed away, 4,000 persons rendered homeless and 7 persons died. In Thanjavur, the heavy rains submerged the standing kuruvai crop and the crop which was ready for harvest. The rains have increased Madras water supply in the 3 reservoirs by one month to 18,000 million cubic feet. The North East monsoon failed again for 14 days and restarted in the third week of October. CSO's monthly abstract of statistics for August reports that prices in the State fell by 1 per cent in May. Rural prices rose by 0.6 per cent reflecting a similar rise in food prices. The inter city prices for April have been reported in the last issue and those for May have not been published.

Power

The power situation in the State in October was normal. The government informed the legislative assembly that it will draw 581 million units of power from Kerala following the agreement with Kerala reported in (Vol. XIV p. 663.) For 1984-85 it estimated power availability at 13,646 MU, but with removal of all restrictions, the peak demand had reached a record of 2152 MW and daily consumption 41.67 MU. The Union had agreed to supplement coal supplies to Tuticorin and had linked 10,000 tonnes from WCL (chanda), and 10,000 tonnes from ECL by rail. The movement of

50,000 tonnes through Vishakapatnam from central, western and eastern coal fields and Bharat coking coal was being finalised. The railways have assured wagons to move coal to Tuticorin. TNEB reports that it expects a short fall of Rs. 193.12 crores in 1984-85, as the revenues of Rs. 478.34 crores were inadequate to meet the operation and maintenance charges and interest on loans and reserves which came to Rs. 671.46 crores. From next year, the second Neyveli mine cut inaugurated in September will provide power to the State. There has been a slippage in the construction of its thermal station whose first 210 MW set should have been commissioned in September and will be ready next year and the other 2 units in 1986. The government announced in the legislature that the new tariff for large farmers would be reviewed and changes introduced if needed to relieve difficulties after a year. The government hopes to receive the Union approval for installation of 2 gas turbines of 50 MW each at Basin Bridge. The State Government's expert committee has recommended naphtha fuelled power generation using gas turbines as an interim option to meet the power crisis in the VII Plan. There will be surplus naphtha in the Madras Refineries of the order of 50,000 tonnes a month and the Union consent will be needed to execute this proposal. 1984-85 still holds uncertainties. The steep rise in power consumption has been referred to. On the supply side, Kerala's supply is subject to review in light of the behaviour of the North East monsoon. Both Ennore and Tuticorin are in urgent need of coal and it is hoped that Union plans and promises will result in adequate coal supplies. Even under the best of circumstances, there will be a power deficit of 15 per cent overall during the year, which will necessiate a power cut on HT industries. The question is whether a small cut should not be imposed now for the balance of the year, rather than to go in for a larger cut later. The State Electricity Board is to reorganise its distribution net work in Madras to provide better service to the growing number of customers, where the number of service connections has increased from 3.1 lakhs in 1976 to more than 5.75 lakhs today. The city is therefore being divided into 3 circles each under a superintending engineer. The comptroller and Auditor General's latest report calls attention to the chronic delays in the execution of rural electrification schemes in Tamil Nadu. 25 schemes sanctioned by REC were 14 to 70 month behind schedule, another 121 schemes which should have been completed by March 1981 are still in progress in January 1983. TNEB has not maintained any records to monitor schemes in light of REC norms. An audit post check of 30 schemes showed that there was a net deficit of Rs. 73.70 lakhs per annum for 9 schemes against an anticipated surplus of Rs. 30.33 lakhs. This topsy turvy record is due to increase in capital outlay compared to the estimates, project delays and missed targets.

The power situation in the country in October presents a mixed picture. Gujarat imposed a 50 per cent power cut for continuous process industrial units, with the non continuous process units not being allowed to work in first and second shifts. In Karnataka the prospects are even grimmer when the total energy available for HT consumers will be only 2.5 million units a day from November 15 against a minimum daily requirement of 10.5 million units. On top, Karnataka has no firm pledge of relief from Kerala, which is willing to part with its share

of Ramagundam power to it, which is 245 mu when fully commissioned. In Haryana the failure of the monsoon has made a daily deficit of 45 to 50 mu, leading to a 12 hour power cut in urban areas and alternate day 10 hours of power for rural areas. In Punjab there are prolonged power cuts on industry ranging from 6 to 11 hours a day. In Maharashtra the gap between power generation and demand will be 1000MW in the last 3 years of the VII Plan, though the present situation is normal. Himachel Pradesh has been asked to bring down its high transmission losses of 30 per cent in 1983-84 by the Planning Commission. Against this rather bleak picture, the Union Government reports that power generation in the first 6 months of 1984-85—April-September-increased by 14 per cent at 7595 GWH compared to 66,219 GWH in that period last year. It states that the thermal power generated from indigenous sets increased by 27 per cent during the period, thus negating the criticism of BHEL sets which generated 28,100 mu in April-September 1984-85. MP reports that a 25 MW project based on wood fire boilers is to be set up to meet the energy needs of the backward areas. Karnataka government reports that it has approved a scheme of allowing power generation in mini hydel projects upto 25 MW each in the private sector. A study of the states power situation in 1983-84 shows that the southern region is at the top in the power gap being 44,75 GWH compared to 40,33 GWH in the eastern region, 37,75 GWH in the northern region and 33,42 in the western region. In Tamil Nadu at 25,58 GWH—and Karnataka at 13,11 GWH the deficit is the highest. As part of its overall strategy to cut fuel costs in different sectors in the industry, the energy ministry has now constituted a new cell to oversee energy conservation measures, through which it is estimated Rs. 3,000 crores could be saved, with an investment of Rs. 5,140 crores in energy conservation schemes and saving of Rs. 7,900 crores on capital expenditures. The cell will operate an Energy Conservation Fund with an initial capital of Rs. 100 crores as a revolving fund every year for 10 years to finance energy conservation investment. In addition the VII Plan working group has proposed an allocation of Rs. 480 crores for R & D in the power sector to improve the reliability and efficiency of power supply. A massive programme of energy plantation over 1.5 million hectares of wasteland for power generation has been proposed in the VII Plan. This will produce 50,000 MW power which is equal to the capacity of all the existing thermal, hydel and nuclear power capacity in the country. The Planning Commission has called attention to the tardy progress of rural electrification in some states, notably Maharashtra which will not attain even 52 per cent of its target for the VI Plan. REC has asked for allocation of Rs. 4,400 crores in VII Plan including Rs. 2,000 crores for its energy conservation schemes. It is working with Canada to formulate and demonstrate projects modelled on the efficiency of the Canadian rural electrification technology in selected areas.

Water

Due to the rains, Mettur crossed 100 feet in early October and at the end of the month was 96 feet, with 6480 cusecs of inflow and discharge of 20,000 cusecs. AP government reports that the Rs. 637 crores Telugu Ganga project, which includes a canal to take drinking water to Madras is proceeding according to schedule and will be completed in 6

years. Tamil Nadu government is to give Rs. 60 crores each year for 3 years from 1984-85 for laying of the project canals.

Supplementary estimates and DA

Supplementary estimates for Rs. 67.31 crores were voted by the legislature in October to finance the extension of the nutritious meal programme to children in the 10-15 age group, the extension of the unemployment relief scheme to include SSLC and Plus 2 passed candidates, opening new health sub centres, FTZ etc. The State government also sanctioned on October 5 four instalments of DA to its staff for May 1, June 1, August 1, October 1, 1984 at a cost of Rs. 48 crores in a full year and Rs. 35 crores this year.

Transport

The Railway Board has clarified that on going electrification projects of the Southern Railway will be completed including the Arkonam-Renigunta electrification by December 1984, the Katpadi-Jolarpet by next year. It also announced that the contract to carry out the earth work and construction of culverts in the Fort-Central station sector of the mass rapid transit system has been awarded. The scheme will cost Rs. 52 crores. An additional Rs. 2 crores has been alloted to this project. Also the project to convert the suburban metre gauge Beach to Tambaram line into broad gauge is receiving favourable attention. It has been approved by a committee of directors of the Railway Board and the Southern Railway has been asked to include the Rs. 55 crore project in the 1985-86 works programme. The Union government reports that Madras has become a transhipment port for international container traffic, replacing Colombo, following the upgradation of its infrastructure reported in (vol XIV p 64). The harbour has improved its facilities to international standards and has eliminated preberth detention completely and has slashed its container rates to make them internationally competitive. In its report to a 11 member experts committee set up by the Union Planning Commission to assess the transport needs of metropolitan cities, MMDA has suggested that Rs. 350 crores will be needed to maintain and upgrade the transport system in Madras during the VII Plan. It projects the city population rising from 4.6 million to 7.1 million in 1991, resulting in doubling the passenger trips on bus and rail from the present 3.3 million to 7 million, passenger cars increasing from 34,000 to 64,000, two wheelers from 87,000 to 163,000, auto rickshaws from 5900 to 9000 and cycles from 700,000 to 1,200,000. The road and rail facilities will have to be expanded.

State Warehousing

The Tamil Nadu Ware Housing Corporation reports a profit of over Rs. 1 crore for 1983-84, declaring a dividend of 6 per cent compared to the 5 per cent declared by the Central Ware Housing Corporation. The Corporation has its own built capacity of 3 lakh tonnes and has 0.56 lakh tonnes of hired capacity. Providing storage for both agricultural produce and industrial goods, the corporation also reports 100 per cent occupancy of the godowns throughout the year. Besides storage, the Corporation provides scientific facilities throughout the year.

Housing

As part of its Rs. 36.80 crore loans for 98 projects, HUDCO has granted Tamil Nadu

a loan of Rs. 6.40 crores. The loan will help construction of 1748 houses for slum dwellers of Madras and Erode and 1400 houses in Gobichettypalayam, Dindigul, Madras, Krishnagiri and Tiruchirapalli.

Pollution control, wild life sanctuary and biosphere reserves

The state government has ordered all industries, local authorities and corporations in the state which are discharging solid, liquid or gaseous effluents or sewage to take necessary measures for effluent/sewage treatment with the consent of the Tamil Nadu Pollution Control Board. New industries and sewage treatment works have to obtain the Board's permission before commissioning production with the effluents sewage being treated according to standards laid down by the Board. The entire State has been declared air pollution control area from October 1, 1983, with 24 industries ranging from asbestos and asbestos products industries to petroleum and petro chemical industries being brought under the Air Pollution and Control of Pollution Act. The forest areas of Megamalai, Cumbum and Gudalur in Madurai district and the forest regions of Srivilliputtur and Rajapalayam have been established as the wild life sanctuary with an area of 550 sq km. The sanctuary will have a zoological park on the Alagar Hills. Further a Planning Commission committee has recommended that the first of 12 biosphere reserves will cover an area of 2,020 sq. km. in Karnataka, Kerala and Tamil Nadu with a total area of 5,670 sq km. The biosphere reserve programme of the Department of Environment is intended to conserve representative eco system. The Nilgiris biosphere reserve area have all important groups of terrestrial and fresh water animal forms, with more than 100 species of mammals, 550 of birds and 80 of reptiles and amphibians. The area harbours 3,500 out of a known total of 13,000 species of flowering plants in the country.

National

VII Plan

The major event in October was the review of the VII Plan Approach Paper which was summarised in Vol. XIV (pp 587-590) by the panel of economists. The review centred around 5 issues. a) First the rate of savings which is set at 26 per cent whereas the Reserve Parks annual report places it at 22.1 per cent for 1983-84 down from 22.7 per cent for 1981-82. The panel was agreeable to placing the savings for this year at 24 per cent and accepted the commission argument that the 26 per cent was the trend line for the 5 years of the VII Plan. Second, the ICOR assumption of 5 per cent was reviewed. It seems to be somewhat unrealistic, if the sectoral ICORs are examined, which show an aggregate nearer 7. Third, there is the public sector outlay of Rs. 180,000 crores proposed, with regard to which the commission's note shows a resource gap of Rs. 39,000 crores which has been reduced to Rs. 10,000 crores. The panel has suggested that the gap may be covered by additional taxation, public sector, additional income from small savings, deficit financing etc - all of which will not ensure non inflationary growth. There is to be another meeting of the panel to review indepth the

resources position. Fourth, there is the balance of payments problem, where the import elasticity output has risen from less than 1 to 1.7, as a result of import being freely taken in and exports not growing. It calculates that during 1985-90 the balance of trade will be Rs.—23,756 crores and current account deficit—Rs. 8,962 and revised it to—Rs. 2,838 crores and —Rs. 10,765 crores respectively. But even this is now proving an underestimate calling for an increase in exports over the 6 per cent assumed and decrease in imports This has not however been faced fully by the commission for the panel. Finally the population projection —of a growth rate of 1,85 per cent which will require a couples protection rate of 60 per cent assumed by the Planning Commission, whereas the census commissioner places this at 48 per cent in 2,000AD. Overall the danger is if the savings rate is pushed to the level proposed and the resources gap covered, the impact on the poor will be to squeeze them further and defeat the poverty alleviation objective. Give the constraint on resources, the outlay of Rs. 31,461 crores requested by the petroleum sector in the VII Plan is likely to be cut by 20 per cent, covering all area of exploration, production refining and marketing. The BOP problem has led the Planning Commission to suggest to the government different sets of polices and export promotion measures for different sets of commodities during the VII Plan, along with a longer time horizon for export policy formulation so that apart from maximising exports during 1985-90, it is further accelerated and diversified after the VII Plan. The commission is of the view that the shipping target of 7.5 million GRT and 0.5 million GRT in VI Plan may fall short by 1.2 million GRT. As the tonnage now in operation include 20 vessels whose demolition into scrad had been permitted by DG of shipping, the gap will be further increased. The working group for power the VII Plan has suggested Rs. 15,000 crores outlay for hydel projects during the plan to be operated by the proposed Power Finance and Development Corporation. This will give priority to hydel to correct the imbalance between the hydel and thermal sector, meet peaking loads and counter the growing inefficiency and cost of the power sector, it states.

Prices

Prices declined by 1.6 per cent during September, with the wholesale price index standing at 340.2 on September 29. The largest decline was in sugar, khandasari and gur —3.9 per cent followed by edible oils —2.4 per cent, oil seeds – 1.9 per cent and cereals —0.8 per cent, while pulses rose by 3 per cent and non electrical machinery 1.4 per cent. Primary articles as a whole showed a fall —3.4 per cent. For the year from March 31 and September 29 1984 the inflation rate declined to 5.5 per cent from the 7 per cent noted in the last issue between March 31 and August 1984. This decline is part of the busy season decline. The government states that better supply management through import of certain essential commodities and introduction of certain fiscal measures, including restriction of money supply have acted as a break on the inflationary trend. While aggregate monetary resources during the week ended August 31,1984 increased by Rs 267 crores compared to a decline of Rs. 183 crores during the previous week, the expansion was moderated by a decline in net bank credit to government sector. The expansion was due to a decline in the banking sector's net monetary liabilities other than

time deposits, and increase in bank credit to the commercial sector and net foreign exchange assets of the banking sector. India's foreign exchange reserves which increased by Rs. 97 crores to Rs. 6255.92 crores during the week ending September 7, declined by Rs. 17.13 crores to Rs. 6238.79 crores during the week ended September 14. On October 5, the government has notified that any person making a true declaration of undisclosed income to the settlement commission will henceforth be guaranteed full confidentiality until the application is admitted and allowed to be proceeded with. This would be a means of reducing the impact of the underground economy.

Union loans

The Union Government announced on October 19 the third tranche of Union loans amounting to Rs. 750 crores, which on October 29 was subscribed with 10 per cent excess at Rs. 825 crores. In the remaining 85 months which coincides with the busy season over Rs. 2,000 crores will have to be raised. Despite raising SLF, the last tranche may have to be subscribed by RBI as was done last year. The release of an instalment of cash reserves by RBI will help the fourth tranche in December. The funds being impounded to check excess liqudity are being tapped by the government loans. The interest on this loan at 7.75, 8.50 and 10.50 per cent and on previous tranches are being jacked up which will reduce the market prices of the older loans in the portfolio of the banks who will have to provide for SLR with reduced market value of the securities held by them. This rising interest rate also reduces the net availability from the loans.

Economy

The Economy is suffering because of the steel industry's low capacity use and marketing problems for which it blames the railways and the department of mines: the department of mines faces the problems of flooded mines as a result of the monsoon but blames the, steel ministry and the railways for its poor performance, which has led SAIL to contact for 1 million tonnes of Australian coking coal—the kind of crash programmes which is unfavourable to the buyer; the railways states that coal mines are not mining enough coal. This kind of inter ministerial bickering should stop and the economy helped by coordinated attack on all shortages. A study on IRDP in a district for 1980-81 and 1981-82 shows that the average investment for IRDP beneficiaries is Rs. 2026 which is inadequate to generate a surplus and that 22 per cent of the accounts were over due between 6 months to more than 12 months. The reasons for overdues need to be considered under various heads, such as reasons pertaining to beneficiaries, lending agencies, projects financed by the lending agencies and development agencies. Some of the beneficiaries misuse the borrowed amounts in many ways. Some of them do not create the assets at all, but exhibit the assets belonging to others as their own to the District Rural Development Agency, (DRDA) authorities or bankers. Some of them dispose of the assets created with the bank credit soon after all necessary formalities are complete and some of them siphon off the portion of the bank credit to unproductive expenditure resulting in financial starvation of the project. To correct this, DRDA workshops should be used to educate the borrowers, identify genuine ones, block/village level development functionaries should be made available to

DRDA, purchase committees, should effect purchases at low cost. Lending agencies should observe proper pre loan sanction obligations to ensure correct credit decisions and proper follow up. The managers should be trained in management of small clientele at short intervals in accordance with IRDP goals. In the debate on the effectiveness of the country's anti poverty programme, one point of agreement is that the eradication of food poverty means that better consumption levels will make easier eradication of illiteracy and illhealth. Using the criterion of infant mortality rate (IMR) India's performance at 123 in 1980 is poorer than other developing countries like Cuba or Sri Lanka at 50. Further some of the anti poverty measures are failing. The Union ministry of rural development points out that in regard to the rural development loan scheme, there has been "mis identification" the result of "deliberate and incorrect" assessment of the existing income levels, routing loans to the better off rural households : there has been total violation of procedures, household surveys to identify the deserving poor have not been conducted, the practice of giving the entire subsidy amount at one go has enabled corrupt officials to pressurise beneficiaries to part with the subsidy and with the convivance of officials beneficiaries either do not acquire productive assets with the bank loans or when they acquire the assets, sell them off, return the bank loans and pocket the subsidies. Local politicians recommend a larger number of applicants than the bank can cope with which gave ise to the Karnataka problem that any one with a ration card was entitled to a development loan. Since the borrowers have built up little or no productive assets repaying the loans becomes a problem and makes the whole programme a give away electioneering stunt which must be stopped. On the land reform front, the government reports that 5,20,000 hectares of land declared as surplus are locked up in court cases filed by land owners, particularly in AP, Bihar, Karnataka, MP, Maharashtra, Rajasthan, UP & WB, besides 3,43,000 hectares declared surplus and taken possession have not been distributed, with 190,400 hectares being unfit for cultivation. This is not the whole story. The annual report of the Ministry of Rural Development for 1983-84 states that since 1980 of the 72 lakh acres of land declared surplus, 57 lakh acres have been taken over and 41 lakh acres distributed. There is need to prevent the courts holding up redistribution of land ; even more regrettable is the fact that land reform legislation should be contested in court more than 3 decades after its adoption as a major aspect of national policy. But the judiciary is less to blame than the State Governments as the landless are today no better off than what they were at the start of the first 5 year plan which incorporated specific provisions for ceiling. This is due to close links between politicians and the rural rich. The function of the regional rural banks is to be reviewed by a working group with a view to identifying appropriate measures for strengthening their organisation structure and improving their overall capabilities. The Reserve Bank announced on October 3 the credit policy for the second half of 1984-85 as (a) provision of adequate credit support to sectors where there is a revival of industrial growth, b) meeting the credit requirements for the 1984-85 kharif food grain procurement, and (c) increasing attention to fulfil the lending obligations in respect of various sub targets identified within the priority sector. Also the overall inirease in liqudity and the growth of of reserve money in 1984-85 are to

be kept well below the rate of increase in 1983-84, without disturbing the pace of the production process. Further except for a marginal rise in the cut off point in the refinance facility for food and export credit (the 100 per cent food refinance raised by 7.5 per cent to Rs. 4,300 crores and banks provided with 100 per cent of the increase in export credit, over the monthly average level for 1983 with effect from November 30) the current slack season's credit policy continues in the coming busy season.

Industry

The index of industrial production which as noted in the last issue (p 715) has been reported to be rising steadily during 1984-85 with 5.2 per cent in April 1984 compared to April 1983, 8.4 per cent in May 1983 compared to May 1984 and 9 per cent in June compared to June 1983 continued to show a rise of 12 per cent in July 1984 compared to July 1983, making a cumulative growth of 8.4 per cent for the first four months April-July 1984 compared to the previous year's .4 months. However a quarter by quarter comparison shows that the industrial index showed a decline of 8.2 per cent in the first quarter April-June 1984-85 compared to the rise of 7.1 per cent during the last quarter January - March 1983-84. The decline in April-June 1984-85 was due to steep decline of the index in April 1984 when the index fell to 183.6 from 206.1 in March 1984, while May recorded no change at 183. 6, and June saw a mere 0.4 per cent rise at 184.3. To return to the comparison between 1984-85 and 1983-84, the infrastructural industries—electricity, coal saleable steel, petroleum products, crude and cement - which account for a total weight 23.3 per cent recorded an increase of 12.3 per cent during April-August 1984 compared to April-August 1983. The Average annual rate of growth of industrial output during the first 4 years of the VI Plan is 5.5 percent. In regard to industrial controls, the BICP has recently confessed its inability to carry out the massive exercise of making cost studies of various bulk drugs and formulations, which calls for changing the basic pricing policies. Similarly DGTD reports that it has to issue 25,000 certificates for machinery imports on the basis of their non manufacture in the country and these and similar controls are impossible to administer from a single office in Delhi, leading to its decentralisation to offices in Madras, Calcutta and now Bombay. But there is need to drop some of these controls. The ministry reports that in 1984 upto August 31, 612 industrial licenses have been issued, recording an increase of 15 per cent over 1983 January to September, with the highest to Maharastra (90), Punjab (77) and West Bengal (63). Of letters of Intent Maharashtra received (113), UP (91), Gujarat 70, AP (63), and Tamil Nadu (57). Till August 206 industrial licenses have been issued in the backward areas, 408 letters of intent to the backward areas including 58 per cent for no industry districts. The engineering industries report a growth of 11 per cent during April-June 1984 though some sub-sectors like MS bolts, nuts and rivets recorded —21.8 per cent, earth moving equipment —17.2 per cent, electric motors —14.2 per cent and boilers —12.5 per cent. The department of electronics announces that it is planning to whittle down the present regime of controls to a minimum to facilitate the rapid growth of the industry during the VII Plan. The government also reports that out of 8761 industrial units 50 per cent are of polluting types and that 2202 units had already taken anti-pollution measures. There is need for industrial estates, SIDCOs.

financial bodies to include pollution control measures in their project estimates.

Public Sector Performance

The ministry reports that the production of 18 public sector units under the department of Heavy industries recorded a growth of 22 per cent during April-August 1984-85 compared to those 5 months in 1983-84. Their production was 80 per cent of the target of Rs. 975.20 crores for the 5 months, with Tungabadhra steel achieving 109 per cent of its target for August 1984, Bharat Pumps 102 per cent and Bharat Process 99 per cent HMT 88 per cent, BHEL 84 per cent, Triveni structurals 84 per cent and Jessop 81 per cent. The ministry also reports that the growth rate of 132 selected industries in the DGTD sector was 9.3 per cent during April-July 1984-85 compared with the 4 months in 1983-84. 30 units with a weight of 4.88 recorded 25 per cent growth, 32 industries with a weight of 11.56 recorded 10.25 per cent growth, 40 with a weight of 14.71 recorded 10 per cent growth, while 30 with a weight of 8.55 declined with negative growth rates.

National Production Front

Steel

SAIL reports that its integrated plants recorded a growth of 11 per cent in the first 6 months, April-September 1984-85, compared to the production in the first half of 1983-84. The cumulative production of saleable steel of Bhilai, Bokaro, Burnpur and Rourkela, during the first half of 1984-85 was 2,234,000 tonnes, of ingot production of 28,87,000 tonnes, of hot metal production of 3,505,000 tonnes. It reports that total sales of indigenous steel exceeded production by 22,000 tonnes at 375,400 tonnes in September. The steel output targets for Bhilai, Bokaro, Durgapur and Rourkela for 1984-85 have been raised to 5 million tonnes (a rise of 15.4 per cent), with a production plan of 5.42 million tonnes for 1985-86, 5.89 million tonnes for 1986-87) 6.35 million tonnes for 1987-88, 6.60 million tonnes for 1988-89 and 7.32 million tonnes by 1989-90. This represents capacity use of 84 per cent after expansion. As noted earlier SAIL has decided to import 100,000 tonnes of coking coal from Australia. The government announces that it has sanctioned a relief package to IISCO which waives the outstanding interest on March 31,1984 on the plan and non plan government loans to IISCO· As a result IISCO is expected to wipe out its loss of Rs. 100 crores during 1983-84.

Crude

Crude petroleum during April-September 1984-85 increased by 12.3 per cent at 13,873 million tonnes, with ONGC producing 12,477 million tonnes (an increase of 121.6 per cent). The aggregate production of the country's 12 refineries during this period was 16.9 million tonnes compared to 17.14 million tonnes in the previous year, the the fall being due to the closing of the Cochin refinery following a fire. ONGC reports striking oil at Bhuvagiri in the South Arcot district, drilling at Kovilkalappal also in South Arcot, exploration for oil and gas off Tiruchi in the Cauvery offshore region, off Kasaragod in Kerala offshore and Bengal offshore basin. OIL is to take up drilling in offshore Andamans. It also plans at intensifying its oil exploration operation in the Himalayan foothills of Jammu and HP. This is

part of the massive increase in exploration for which the outly is to be increased from Rs. 1,487.15 crores in the VI Plan to Rs. 3,595 crores in the VII Plan. ONGC has its exploration and operations divisions to go on a war footing in order to attain the crude target of 45 mt by 1990 which will make the country self sufficient in crude. For this ONGC, OIL and foreign oil companies have to work with defined targets. The current year's demand is estimated at 39 million tonnes of which ONGC will supply 27 million tonnes, OIL 3 million tonnes, meeting 77 per cent of the demand. ONGC registerd a sales turnover of Rs. 3,454.11 crores during 1983-84, generated Rs. 1,284 crores for meeting its plan expenditure, contributed Rs. 1907 crores to the government exchequer and made a profit of Rs. 805.65 crores after tax. The Planning Commission's sub group on refineries has recommended urgent steps to expand the crude oil refining capacity in the country to meet the massive deficit in the production of middle distillates expected to arise during the VII & VIII Plans, rising from 1.1 million tonnes at the start of the VII Plan to 8.1 million tonnes by the last year of the Plan. Even if the energy conservation measures and the increased use of coal and power projected by the Planning Commission succeeded, the deficit will still be 5-6 million tonnes. In the VIII Plan the deficit will increase from 10.2 million tonnes in the first year to 20 million tonnes by 1994-95. If the Planning Commission's suggested measures succeed, the deficit in the VIII Plan will rise from 7.7 million tonnes to 12.7 million tonnes by the end of the Plan. So the group recommends completing approved projects early, namely Karnal and Mangalore refineries which will contribute 7 million tonnes per annum of middle distillates and the 6 other projects now under study (Koyali, Barauni and Mathura refineries debottle necking, expansion of Bongaigoan and Digboi) should be acted upon soon.

Coal

Coal production during April-September 1984-85 was 64.73 million tonnes (10 per cent increase compared to last year's first six months), CIL producing 56.62 million tonnes. The government reports that Singareni coal will continue to have its high 40 per cent ash content in the future, due in part to mechanisation of the mines which excludes hand picking of dire bands and which in part explains the decision to import 2 lakh tonnes of Australian coal to be paid by East German and Czechoslavak governments to whom the equivalent in rupees is being paid. The Geological Survey of India reports establishing an additional reserve of coal of around 6,000 million tonnes, which could be used for the new super thermal plants in Kahelgaon in Bihar and Farakka. It reports striking a number of new coal seams in Godavari coal fields, around 21.22 million tonnes at Bhapalpalli Chelpur sector of the coal fields. The government reports that the coal companies have been during the first 6 months of 1984-85, using their funds poorly. Their use is about 25 per cent of the budget of Rs. 925 crores in that period, at which rate they will have to return Rs. 150 crores to the government at the end of the year. The reasons for the sharp decline in equipment expenditure is being examined with a view to taking corective action. The Bureau of Industrial costs and prices states that all past projections of coal demand have gone wrong and suggests a detailed exercise to arrive both at qualitative and quantitative requirements of coal for each sector of

industry and therefore of the product mix. The government reports that the interministerial group has cleared coal projects worth of 800 crores as advance clearance action for the VIII Plan. In the first seven month of 1984-85, 25 coal projects were approved, the first 9 of which will produce 10 million tonnes.

Non ferrous

Government announces that copper imports in this financial year will be 40,000 tonnes, costing Rs. 157 crores, the lowest in this plan period. Lead imports will be 35,000 tonnes at Rs. 35 crores.

Sugar and textiles

Sugar production during the 1983-84 sugar season was 58.81 lakh tonnes by mid September compared to 82.19 lakh in 1982-83 mid September. Closing stocks with factories were 27.52 lakh tonnes as against last year's 49.83 lakh tonnes. According to ISMA the total offtake in the season till September 15 was 70.68 lakh tonnes for domestic consumption and 6.48 lakh tonnes for exports against 61.41 lakh tonnes and 3.58 lakh tonnes respectively in the previous season. The sugar industry in Bihar is in deep trouble with the industry deeply in the red with outstanding to the cane growers being Rs. 24 crores a poor rate of recovery which was 1 or 2 per cent in June/July and lack of adequate financial support from the banks. Most of the mills are old and unviable and should be sold out. On the textile front, the Union government has brought both cotton and man made fibre spinning industry within the purview of industial licensing, rescinding its notification of November 1, 1975 exempting the sector from industrial licensing. Now existing cotton and man made fibre spinning industries must obtain 'a carry on business' license within a stipulated period ending February 1985 and for fresh capacity, application must be addressed to the department of industrial development. A high level committee under the textile secretary has been set up to review the present situation in the textile industry, examine the existing industrial and trade policies and suggest measure for modernisation and growth of the industry.

Jute and cotton

IJMA states that due to the jute crop being estimated at 72 lakh bales in 1984-85, raw jute prices ruling in at October Rs. 970 per quintal compared to Rs. 730 in September and Rs. 350 a year back and the non arrival of the import of 3 lakh tonnes of raw jute, jute goods production will decline sharply in 1984-85 and exports will be 3 lakh tonnes valued at Rs. 325 crores, of which 1·6 lakh tonnes will be to the Soviet and East Europe countries. The Planning Commission working group on jute has recommended a massive investment of Rs. 540 crores in modernisation of the jute industry, introducing new technology machines to manufacture lighter and new products to offset massive raw jute shortages anticipated in the VII Plan, the larger use of jute goods in the internal market through the fertiliser industry jute bags and the phased purchase of jute goods by DGSD on behalf of FCI and State governments and several measures to encourage exports. On the cotton front, there is the usual variation and uncertainly over the production estimates. For 1983-34 the government estimate is 65.8 lakh bales, the trade estimate is

75 lakh bales, in 1982-83 the government estimate is 77 lakh bales, the trade estimate being 83 lakh bales. A production target of 85 to 88 lakh bales has been fixed for 1984-85. There are three problems here. First, these varying and uncertain estimates make any kind of planning difficult. Second, the government which exported 3.8 lakh in 1981-82, 7 lakh bales in 1982-83 and 2.87 lakh bales in 1983-84 has postponed the export for 1984-85 to January. This is wrong because while we are in short supply in short and medium staple cotton, we are surplus in long and extra long cotton fibre because our mills are not equipped to use this variety and CAB should have decided now on its export because 3 months from now the international market will be weak as most consumers would have booked their orders in October. Third, the majority of the composite cotton textile mills face a serious problem as a result of cotton shortage. CAB which met on October 1 estimates the cotton crop for September 1984 to August 1985 at 79 lakh bales, the carry forward for 1985 at 5.44 lakh bales against 12.46 lakh bales in the current year. The proposal to import viscose staple fibre has run into difficulties, cotton prices are soaring in the wake of shortage, the wage bill and the water and electricity charges are also rising leading, to the grim in industry estimate that only 50 of the 250 mills may survive. To their problems listed above should be added the competition from the power loom sector. The industry states that the majority of composite mills will find it advantageous to close down because of their obsolete machinery and modernisation requiring huge induction of easy credit. And as most of them are not viable, banks are shying away from these mills.

Agricultural production

ICAR attributes the record 1983-84 production of foodgrain of 151.5 million tonnes mainly to the introduction of improved varieties which not only give higher yield but also possess built in resistance to pests, diseases and other stress conditions. The Union ministry confirms that the annual compound growth rate of food production during the first 4 years of the VI Plan was 4.34 per cent against the Plan target of 3.9 per cent, with wheat growing at 6.1 per cent, rice at 3.9 per cent and pulses at 2.2 per cent. Wheat increases are due to genetic use to produce dwarf varieties and the thrust now is to incorporate pest resistance in crops, the substitution of biological for chemical fertilisers, the quality seeds through minikits, and further increase by WB, Bihar, Orissa, UP & MP. The Union Government has sanctioned short term loan assistance of Rs. 134.1 crores to the State Governments for puchase and distribution of agricultural inputs like fertilisers, seeds and pesticides for the 1984-85 rabi programme, under which Tamil Nadu has been allotted Rs. 10 crores. It has asked the State Governments to ensure concerted efforts by the departments of agriculture, irrigation and command area to achieve the rabi target of 68.83 million tonnes. The strategy suggested include giving precedence to crops which require less water, examining the canal system to ensure that they are in good condition, undertaking crop cutting experiments to ascertain productivity levels from irrigated agriculture and giving special attention to micro irrigation schemes from ground water so that the non availability of electricity or diesel does not act as a constraint. The ministry forecasts that kharif production is likely to remain at last year's level of 89

million tonnes. On the other hand with the October rains relieving even drought hit parts of Karnataka, Maharashtra, MP & HP and its plentifulness in WB, Bihar, Tamil Nadu, it expects the rabi target of 63.8 million tonnes to be attained, if not exceeded and the year's aggregate target of 153.6 million tonnes to be reached. The total procurement of wheat and rice during the 1983-84 season ending September 1984 was 170 lakh tonnes (wheat 92,81,524 tonnes and rice 78,04,595 tonnes). Punjab contributes 50,02,177 tonnes of wheat and 32,31,244 tonnes of rice, followed by UP with 21,41,071 tonnes of wheat and 88,00,198 tonnes of rice and AP with 15,64,057 tonnes of rice. On the other hand the offtake of wheat and rice has steadily declined. By October 1, 1984 the total food grains stock reached 20,620,000 tonnes comprising 168,72,000 tonnes of wheat and 31,59,000 of rice. For 1983-84 37.64 lakh tonnes of wheat, rice and coarse grains were the offtake for the 4 months upto July 31 compared to 52.41 lakh tonnes offtake during the 4 months in 1982-1983. During January—September 1984, 98,92,000 tonnes of food grains were lifted by the public distribution system—wheat 51,86,000 tonnes. With a second bumper crop in sight, the problem of the inadequate foodgrain storage capacity in the country is worrying the government. Already the wheat procured by the Food Corporation is being kept in CAP storage, and now rice will have to be stored in the open. Foodgrains are being moved from the North to the South to enable the former's storage capacity to be used for storing current kharif rice. The question of the economics of maintaining buffer stocks needs to be more carefully reviewed. Agricultural scientists forecast a break through in uplses production, with the possibility of achieving 10 per cent growth rate, which can double the present pulses output of 12.5 million tonnes without additional inputs. Isolation of gram cultivers which have over the last 3 years exhibited a lower pest infestation, the use of neem leaf extract against pests attack and use of NPV, a virus which kills pod bearers are the new development. On this basis all states have been advised to multiply seeds of new improved variety, establish quality control laboratory for rhizobial culture and create effective pest control service for pulses at low cost.

Foreign trade

An AIEI study states that India's share of $ 8.6 billion in 1983 in world exports of $ 1810 billions means that India's percentage of world trade has declined from 0.64 per cent in 1970 to 0.47 per cent in 1983. For 1983-84 the trade deficit has been Rs. 6,000 crores compared to a surplus of Rs. 68 crores in 1976-77. India's exports recorded an annual growth of 15 per cent and imports of 9.39 per cent in the 70s but during the VI Plan exports rose by 10 per cent and imports by 13.9 per cent. Exports accounted for 6.1 per cent of GNP and imports 9.9 per cent in 1982-83. The composition of imports have undergone massive changes, implying diversification in the domestic industrial base. The share of petroleum in imports is declining to 39 per cent in 1982-83 followed by non electrical machinery (9.6 per cent), iron and steel (8 per cent) and transport equipment (4.2 per cent). In exports, engineering goods are the most dynamic (14.1 per cent of exports), pearls and precious stones (9.3 per cent), cotton apparel (6), iron ore (4.2) tea (4.2); leather and leather goods (3.9)

and chemicals (3.5). Over one third of India's exports are directed to Asia and Oceania (35 per cent), East Europe (24.6), West Europe (21.9), America (13.3) and Africa (5.2). An official study on exports concluded that in VII Plan there can be 4-5 per cent growth without any change in foreign trade policy. The projections are based on past trends, which in foreign trade can provide little reliable guidance because of fast changes in it (for e. g. two decades ago India exported large amounts of ground nut oil, while today it is a major importer of edible oils). What is needed is a commodity wise marketing approach to assess future supply demand possibilities. Similarly the four areas suggested for future expansion—engineering goods, chemicals, gems and jewellery and garments are today in the forefront but some of them face stagnation which calls for technological upgradation. In this connection the announcement that an IMF team is visiting New Delhi for a detailed review of the economic and financial situation and policies of the country might be of some interest in their review of how far their EFF has helped to correct the structural imbalance of the economy. Exports of engineering goods rose by 12. 5 per cent during April-August 1984 over the corresponding period of the previous year, with exports totalling Rs. 450 crores for the 5 months and for August Rs. 90 crores. Iron ore exports to Japan during April-September 1984-85 amounted to 2.92 million tonnes compared to 2.71 million tonnes during that period in 1983-84. Frozen shrimp exports to Japan during April-September 1984 were lower at 1843 tonnes compared to 2100 tonnes in the corresponding period of 1983-84. Woolen exports during April-July 1984 were Rs.27 crores compared to Rs.15 crores in the same period in 1983, but the chance of reaching the year's target of Rs. 110 is doubtful because of the Soviet Union's reduced purchases. The industry is urging the government to implement the ministry's study group recommendation to modernise the industry, through soft loans, OGL for raw materials and reduced import excise duty on the needed machinery for use of improved technology. Custom duty on sub assemblies for the manufacture of components for fuel efficient automobilles and the two wheelers was reduced from 160 per cent to 40 per cent to enable automobile ancillary industries to set up units for manufacturing components. The value of exports of construction projects has increased from Rs. 308 crores in 1983 to an estimated Rs. 1375 crores in 1984, the 3 fold increase due to the government agreement in Iraq, and similar negotiations in Libya and the separate export promotion council set up called the Overseas Construction Council. The Union government announced in October arrangements to import 1.30 lakh tonnes of edible oils through STC, which needs review, particularly the subsidised supply to the vanaspati producers. The Indian rupee in early October crossed the Rs. 12 a dollar level when RBI fixed the purchase rate of $ 8.33 for Rs. 100/- which is a reflection of the continued strength of the US dollar. The Seventh Plan working group on electronics has set a target of Rs. 1000 crores for electronics exports by 1989-90, calling for an import of Rs. 2000 crores during the Plan, enabling it to produce by the terminal year Rs. 10,000 crores, including Rs. 2000 crores of computers.

Loans and Aid

IDA is extending a credit of $ 39.1 million to finance improvement of agricultural extension system in MP, Rajasthan and Orissa. UK aid to India fo

1984 will be £ 140 million. EEC is giving an aid of $ 47.53 million to India for modernisation of tank irrigation in Tamil Nadu, fertilizer projects in Maharashtra and Gujarat and training centres. On international foreign loans, IDBI raised its second borrowing of 5 billion yen by sale of bonds in the Japanese capital market following a similar amount borrowed by IDBI in June 1984. (See Vol XIV P 500). The Banque Nationale de Paris (BNP) has been nominated as the lead manager in the 10 member consortium of international bankers for raising 300 million Euro dollars loan for the National Aluminium company. During January-August 1984, India raised $ 192 million through international bonds, compared to $ 40 million raised in 1983. India's International bond issue has been declining from $ 271 million in 1981, to $ 225 million in 1982 and $ 60 million in 1983, with a spurt only in 1984. India's foreign exchange reserve upto mid September 1984 stood at a record Rs. 6238.79 crores against Rs. 5497.9 crores in early April 1984. This means that for the current financial year the reserves are increased by Rs. 740 crores, against the decline of Rs. 102 crores until mid May. Despite the recent spurt in the value of the US dollar, the uptrend in interest rates abroad and persisting trade deficits, remittances from Indians working abroad have increased significantly.

International

Bangladesh

In October, India and Bangladesh signed an agreement to expand and diversify bilateral trade, increase the pace of industrial collaboration and achieve a better balance of trade between the 2 countries. India is to favourably consider the import of 20,000 tonnes of newsprint in 1985 and to buy limited quantitites of chemical, naphtha and natural gas.

GATT

The proposal of a new round of trade negotiations under GATT is opposed by developing countries because of (a) the covert and overt methods adopted by the industrialised countries to circumvent the old GATT arguments, and (b) those of the old agreements which US and the other industrialised countries find inconvenient will stand cancelled, when the new round starts. Further while the US and Japan want to put trade in services (banking and transfer of technology) on the agenda of the new round of negotiations, they are opposed to including labour services in which developing countries have a great stake. Also the industrialised countries have not responded to the demand of the developing countries to exercise some restraint in levying counter vailing duties on the imports of the newly industrialising countries. Taking for instance textiles, the industrialised countries have wrecked MFA and have succeeded in getting the textile exporters to sign separate agreements, under which as the GATT study points out, while MFA I (1974-78) saw relative liberalisation of trade in textiles, clothing MFA II (1978-81) reversed the trend and MFA III has further increased the restrictions of MFA II, leading to the many third world countries not being able to fulfil their quotas, which the GATT study points out is not "proof of the frequent assertion that bilateral agreements do not restrict trade". But the US insists on circumventing GATT with bilateral agreements which is the way of wrecking MFA. The Textile

Surveillance Body (TSB) of GATT which is to monitor compliance with MFA reports that the MFA III renegotiated in 1981 to last from 1982-1986 (see Vol XI p 545 Vol XII p 81) has not been working as intended as (a) trade restraints under MFA have been applied almost exclusively to products from developing countries, (b) restraints introduced under the latest MFA have been more extensive and more restrictive, (c) MFA which was to ensure special treatment have had their production and marketing of producing countries adversely affected by the more severe application of MFA, and (d) little head way has been made in the objectives of achieving the reduction of trade barriers and the liberalisation of world trade. At a 40 nation meeting in Geneva in October of GATT on the working of GSP, tariff escalations, anti-dumping and counter-vailing duties, quota restrictions and non tariff barriers, the developing countries criticised strongly the trade policies of the US, Japan and EEC, complaining specifically that all 3 industrialised groups had higher import tariffs on certain processed goods than those imposed for raw materials, resulting in insurmountable obstacles. Also various tariff barriers such as Japan's health, quality and packaging standards for imports are means of cutting imports from developing countries. The US at the meeting stated if it is to open its market to the third world countries, then those countries must liberalise their trading regimes, which is the US doctrine of reciprocity in easing tariff barriers of the developing countries. In its Annual Report for 1983, GATT reports that world trade which declined by 2.5 per cent in 1982 grew by 2 per cent in 1983 and by 9 per cent in January-June 1984. In 1983 while in quantum terms the growth of world trade was 2 per cent, the appreciation of the dollar resulted in value terms to a decline by 4.1 per cent. In 1983 the prolonged deterrioration of the terms of trade of non oil developing countries which was -3.5 per cent in 1982 ended with a+1.1 per cent in 1983. But for oil exporting countries it was -0.4 per cent in 1982 and -9 per cent in 1983, while for the industrialised countries it was+1.8 per cent in 1982 and +2.1 per cent in 1983. The deficit of non oil developing countries fell by $ 26 billion to $ 56 billion in 1983. They also resumed their import growth in the latter part of 1983, reducing their current account deficits by 12.5 per cent of their exports earnings. The oil exporting countries whose 1980 surplus of $ 110 billion was converted into a deficit in 1982 were in the same situation in 1983. The exports of developing countries increased marginally by 0.6 per cent in 1983 in contrast to the fall of 7.4 per cent in 1982. Their balance of payments position continued to face severe external constraints. The industrialised countries increased their exports by 2 per cent in 1983) (-2.1 per cent in 1982) and imports by 4.1 per cent (-0.5 per cent in 1982). The current account deficit of the US was $ 42 billion in 1983 and will likely double in 1984. These are confirmed by the publications of the International Finance Statistics which record a 1 per cent increase in the output of industrial countries in the second quarter of 1984, a slow down in their money supply and price level while for the non oil developing countries money growth accelerated from 40.6 per cent in the first quarter of 1983 to 49.5 per cent in the first quarter of 1984 and the US dollar price of non oil primary commodities declined by 1 per cent. GATT reports in October that the delay and non payment of dues by the US and some other industralised countries is placing it in serious difficulties

in meeting its salary and other obligations.

IFAD

The second replenishment of the International Fund for Agricultural Development (IFAD) (1984-86) which in the first replenishment (1981-83) was $ 1.1 billion, is being negotiated at a reduced level of $ 800 million, in view of the OPEC countries inability to meet their committed contributions. The Fund was to be financed 50 per cent by OPEC and 50 per cent by OECD countries. But Iraq and Iran could not contribute due to their war and so in the first replenishment OPEC contributed 43 per cent and OECD countries 57 per cent. IFAD loans are on soft terms like IDA carrying a maximum of 4 per cent interest and the loans repayment spread over 50 years. For the second replenishment, OPECs share will be 42 per cent and OECD 58 per cent. The US is taking the position that if OPECs share is reduced due to Iran Iraq dropping out of the donor countries and the drying up of oil revenue, the OECD countries will have to cut back their contributions on the principle of 'burden sharing' and Japan and other industrial countries are following the US line. Hence the 139 nations meeting of IFAD at the end of October was still deadlocked with the poorest developing countries being the sufferers. IFAD has been set up to help millions of small farmers and landless workers to fight hunger and poverty. The Bangladesh delegate pointed out that even a replenishment of of $1 billion would mean a cut back of 30 per cent over the Ist replenishment funding. At the end of October a drafting committee is still at work to arrive at an agreement on the size of the second replenishment of IFAD.

World Food

FAO's forecast of world cereal production for 1984 has been reduced from 1756 million tonnes (See Vol. XIV p. 502) by 11 million tonnes because of the lower harvest prospects in USSR, Canada and Argentina. This is still 119 million tonnes more than the food grain output of 1983. Thus the forecast of world cereal supplies in 1984-85 is placed at 1861 million tonnes, cereal imports at 205.5 million tonnes and world cereal stocks at 279 million tonnes. A US congressional panel working on this data refers to the increasing availability of food world wide over the past decade, but that hunger and malnutrition still exist in many areas, particularly in sub Saharan Africa where per capita food production and availability has declined.

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II. Agricultural Development in Tamil Nadu

Paddy and other crops

With the plentiful water in Mettur, referred to earlier, water supply to the delta areas was increased from 18,000 to 20,000 cusecs from October 24. Dockets in Manavakkadu, Thirumalkottai, Elanoor, Thulajendrapuram, Shathamani and Melavasal were hit by water scarcity in the transplanted samba crop and kuruvai nurseries and so the Vadayar ayacut has been exempted from the turn system to ensure adequate water to their areas. The uncertainty in September over the thaladi crop cultivation in the Thanjavur delta disappeared with the heavy rains at the end of September and beginning of October. The thaladi crop following is being grown in 4 lakh acres and they need irrigation till January end. The State observed the national agricultural inputs fortnight from October 8 to 22 with emphasis on an integrated approach to all inputs, seeds, fertilisers, pesticides, irrigation, credits and implements. All agencies—government, agricultural universities, agro industrial corporation were mobilised during the fortnight and 6 state level conventions and 99 division level celebrations were held to help farmers implement the purposes of the fornight. Farmers in the State Thanjavur, Tiruchi, Tirunelveli, North and South Arcot etc — are hopeful about the prospects of the samba paddy crop following wide spread rains. The transplantation of paddy was underway in the beginning of October. In the North Arcot 40,000 hectares have been brought under samba and the remaining 1.4 hectares are being taken up during the North East monsoon. The State Government decided in early June to advance Rs. 15 a quintal in kind to every farmer who sold his paddy to the direct purchase centres of the State civil supplies corporation in part compensation against the loss he suffered from the floods last year and drought the year before. Under this system, the farmer who deposited paddy with the direct purchase centre is given a token, against which he draws fertilisers from the village level societies to help in his samba cultivation. The first crop of rice in Madurai district harvested in October was good, averaging 5 tonnes per hectare. The short term crop planted in 26,658 hectares in July was harvested in September/October and now the farmers are readying for the samba planting on 1.3 lakh hectares. The target for samba in this district is 1.55 lakh hectares which with HYV and increased fertilisers will yield 4.82 lakh tonnes. In the first crop, about 4,000 hectares in the Nilakkottai division were affected by the Tungro virus disease which reduced the yield from 6 tonnes to 4 tonnes per hectare. It has now been contained and the samba nurseries are unaffected. The farmers have also made progress in millets and cotton production. In Madurai district 4 lakh tonnes of millets with improved varieties of cholam, cumbu, ragi and maize are being grown over 2.75 lakh hectares. In Kanyakumari district, about 80 per cent of the total area of 23,000 hectares in the first season which has been just harvested, has yielded an average of 4.2 tonnes per hectare. Now farmers are busy with nurseries for the second crop over 46,000 hectares. The 90 per cent of farmers who are small and marginal farmers prefer to grow the local varieties as they yield more straw but their productivity is low and so they are now taking up HYV like TKM-9.

IR-20. Cotton is gaining ground in Madurai district particularly in rainfed areas, where the rain fed technology is spreading. The rains have benefited the rainfed ground nut crop in North and South Arcot. With the decision of the Tamil Nadu Civil Supplies Corporation deciding to levy kuruvai paddy with moisture content upto 22 per cent against the previous 18 per cent (because of the rains at the time of harvest) and with a bumper kuruvai crop expected to cross ten lakh tonnes (and for the delta the annual crop would be 31 lakh tonnes) and the production incentive referred to, October saw a rush of paddy by the farmers to the direct purchase centres. By October 15, kuruvai paddy procurement in Thanjavur district crossed 1 lakh tonnes and the purchase of 1200 tonnes of paddy on the 16th was a record. The problem of storage of the paddy has now arisen and apart from sending about 30,000 tonnes to the districts, temples and godowns of other departments are being used for storage as well as open air storage using CAP techniques. In Tiruchi district 40 direct purchase centres have bought 5000 tonnes of paddy and 30 more centres are being opened—as part of the 225 direct purchase centres and 60 levy collection centres for the whole state, which were later increased to 531 centres. The state which has had poor harvests now faces unprecedented arrivals of paddy and has had to use crash methods to accomodate the arrivals.

Research results

Kerala Agricultural university reports that its studies on relay cropping in command areas which substituted the plan to grow 3 paddy crops which failed, show that at Kudaikankannu relay cropping with banana and ground nut is feasible in the paddy fields and the farmers have taken it up and are earning an annual profit of Rs. 25,000/- per hectare. Studies on weed control in the state show that weed management applied from the start by using herbicides in a thin film of water, in post emergence application 24D sodium salt and use of monocrotophos 40 EC and fungicide like Edifenphos can control weeds, pests and rice blast. The TNAU centre at Madurai working on water management states that the scheduling of irrigation is basad on the depth and intervals of irrigation, soil water regime or moisture approach and climatic approach which is the simplest and most effective. The plant is not only an acqua-duct pumping water obtained from the soil but also is resistent to absorption of water. Hence the irrigation schedule for each crop should be worked on the basis of evaporation values, obtained from the USWB open pan evaporimeter. The Rastakuntabai centre in Vizianagaram working on pigeon peas reports that it can be grown from October to February after the harvest of bajra or maize as a rabi crop, using C-11, LRG-36 and ICPH-2 which are medium maturing, using 30-35 kg/ha to maintain high population density. Work on musard seed shows that it can be grown as a pure crop in rabi season or in mixture with other crops and responds well to chemical fertilisers, with its maturing within 125-150 days TNAUs banana station at Vellore states that as the hill banana in Palani has been reduced by bunchy top disease, it has developed the Virupakshi banana to be grown in the plains, with limited irrigation, putting forth bunches with 60-70 fruits in 6 or 7 hands. CO-1 recently released by TNAU is similar to Virupaksha and is a hill banana grown on the plain. TNAU coimbatore reports that its studies on the root knot nematode problem in

vegetable cultivation shows that it can be controlled at the nursery stage by the application of nematodes—abdicarb at 2 gm/sq m or carbofuran. The Bhubaneswar centre states its experiments on pepper standards shows that Pongalium is the best standard being a straight and tall soft wood tree with few banches and the climbing roots of pepper cover and spread over it conveniently and having a deep root system, does not compete with pepper for nutrients. When pepper is replanted after 20 or 30 years, all Pongalium trees can be cut down and sold at a good price. Coconut growing in Tamil Nadu is spreading with HY hybrids TXD, DXT and work on them shows that they need regular manuring with measured doses of fertilisers during the second and third years along with a sound plant protection schedule to guard against the rhinoceros beetle, the leaf eating caterpillar, red palm weevil and the white grub. The Kanyakumari centre reports new nursery techniques for rubber cultivation which involve carrying out the budding on 4 to 7 week old stocks, binding the bud patch with polythene tape and after 3 weeks removing the tape, cutting back the stock, leaving a snag of 20 cm above the bud union. The plants produced are hardy and can be planted in the field. The Tiruchi Nematology laboratory working on tobacco nematode reports that it can be controlled by analysis of soil to know the intensity of nematodes, avoid planting seedling with root knots, applying farmyard manure, rotating the crop with cereals, and application of nematocides from the nursery stage onwards. The Rastakuntabai station earlier referred to also reports that a promising brinjal variety Bhagya mathi—developed by the AP agricultural university—is being grown by it under rainfed conditions in sandy loam soil, using 600 gm of seed to raise the nursery and transplanting seedlings of 30-35 days in July, applying the usual dose of fertilisers, to obtain a well managed crop yielding about 45-50 quintals per hectare. PAU scientists report developing new HYV rabi maize, Partap and Partap I which yield upto 120 quintals per hectare, (as maize is usually a kharif crop) which are cold resistant. CRRI scientists report developing a very early rice variety, sattari, as a 70 day crop, giving 20-25 quintals per hectare, not giving time for a disease to develop. It is 70 cm tall, need not be transplanted, can be sown directly in the field, requring 200 kg of ammonium sulphate, 100 kg of single super phosphate and 30 kg of muriate of potash for optium yield. The rice research station in Kerala reports that soaking rice seeds in copper sulphate or zinc sulphate solution instead of water increased production of grain and developed disease resistance in the crop. TNAU scientists reports that when amaranthi is grown for grain and greens, after a few rounds of clipping the tender leaves in the initial stages and the crop is allowed to set seeds, it yields upto 1 tonne of grain per hectare. Its seeds can be broadcast in well pulversied soils or nursery raised and in less than 3 months reaches harvest. Researches on sulphur in crops show that sulphur deficiency is common in groundnuts, cotton, tea, tobacco etc. Sulphates which are used for tobacco, potato, grapes, mango and vegetables face the problem of scarcity of ammonium sulphate compounds. Hence a combination of urea with super phosphate is recommended for the crops including tea. TNAU's Arrupukkotai station which has been working on rain fed cotton reports that rainfed cotton MCU-10 raised in association with black gram recorded a high yield of 2493 kg. of kapas per hectare, or 2485 kg. of kapas per/ha

of pure crop or 228 kg. in association with green gram, if there is premonsoon during seeding, sowing seeds at 2.5 cm depth, manuring with more emphasis on dose and time of application and plant protection, as needed. Annamalai University reports developing a new musk melon which can fit into a multiple cropping programme, can be rotated with vegetable crops and sowing during February to June, with ordered irrigation, pest protected, can be harvested on the 60th day yielding 17500 fruits per hectare. The Kodaikanal sheep institute working on liver rot disease in sheep reports that it can be treated by using anti fluke drugs like carbon tetrachloride and adoption of strategic drencing. The Tirupathi veterinary centre reports that the horn cancer of cattle if detected at an early stage is curable by radical operative measures and by dehudding in young animals. TNAU's Dottaneri centre on sheep had further developed the quality meat of mecheri sheep by crossing Macheri eves with Dorset Mandya and Dorset Nellore. TNAU station in Coimbatore reports designing a horizontal drum type ground nut stripper which can strip 150 kg cleaned pods per hour and strip the produce from 1 hectare with 12-15 hours.

Animal husbandry

The department has launched a Union sponsored scheme to make Kanyakumari district free from foot and mouth disease at a cost of Rs. 40 lakhs for 3 years. Government has sanctioned Rs. 29.45 lakh for the first year. This is part of creating a disease free zone (DFZ) comprising Trivandrum, Quilon and Kanyakumari involving a 3 pronged strategy comprising :

(a) mass vaccination against foot and mouth disease and rinderpest,

(b) setting up checkposts on important cattle movement routes, and

(c) establishing infrastructure for disease surveillance and control throughout the zone.

The DFZ will be gradually expanded to cover other districts.

Sericulture and chillies

A sericulture domonstration cum training centre for farmers is being established near Palayamkottai at a cost of Rs. 9.47 lakhs. A similar centre has been set up at Kennam in Kanyakumari district at a cost of Rs. 3.77 lakhs. 765 families have taken up sericulture in the 2 districts with a government subsidy of Rs. 86,250 for planting mulberry and purchasing equipment. Rs. 1.08 lakhs is being used for training in silk rearing. The production of chillies in Ramanathapuram district has fallen sharply. Till 1983-84 23,600 hectares were used to grow the crop, but as a result of the heavy rains in March, even the 12,000 hectares on which they were grown in 1983-84 has now been reduced to 150 hectares. 1,716 farmers suffered losses estimated at Rs. 235 lakhs. Farmers in Aruppukkotai, Mudugalathur, Paramakudi, Ramanathapuram, Nainar Koil, Malayankudi lost heavily and were not given a subsidy on fertiliers which saved the crop. Now they have switched to other dry crops and as a consequence chillie prices have more than doubled.

Fish Farming

The Central Inland Fisheries Research Institute, Madras reports that it has achieved a break through in the development of a seed production technology of tiger shrimp in its prawn breeding

centre, Ennore. It reports that it has successfully raised 5,000 seeds of tiger shrimp through a specialised technique involving new feeding formulation methods for different types of larvae, reduction of mortality rate and development of running water system from the Ennore river mouth. The State government is increasing fish production in the State. Inland fisheries production in Madurai district is being increased through the development of reservoir fisheries, fish seeds production, fish culture in rainfed tanks, intensive fish culture in selected tanks, fisheries in provincialised waters. The department is increasing marine fish production from 2.17 lakh tonnes to 3 lakh tonnes, inland fish production from 1.6 lakh tonnes to 2.10 lakh tonnes by the end of this financial year. Inland fishing stations have been established at Madras, Cuddalore, Mallipattinam, Rameswaram and Kanyakumari for conducting a survey within a 20 fathom line for locating suitable fishing grounds for commercial fishing. One set back to attaining the target of fish production is the unsettled conditions created by Sri Lanka and its navy boats in regard to Tamil Nadu fishermen fishing between Rameshwaram and Talaimanar. This needs attention by both the Union and State governments.

Hill crops

As noted earlier the hill bananas grown over 15,000 hectares of the lower Palani hills in Madurai district has now shrunk to 2,000 hectares because of the bunch top disease which effected the bananas. This is a blow to the farmers most of whom were small farmers, earning a good income from the banana cultivation. The horticulture department is trying to rejuvenate the hill banana in the region by bringing in disease free suckers from the Kolli hills and Chinnakalrayan hills, which will take some years. Meanwhile other plantation and horticulrural crops are being grown in the Palani hills such as coffee, pineapple, mandarin orange, chow chow, hybrid pepper, cinamom, clove and nutmeg.

Tea and coffee

The Union government in October permitted additional exports of 9 million kg of tea to USSR and a further 3 million kg to Poland, which brings the total tea exports to the Soviet union in 1984 to 70 millon kg and to Poland 8 million kg, compared to 66 million kg and 14 million kg in 1983. These increases are to be within the 1984 export ceiling of 215 million kg. As on October 20, 185 million kg of tea exports have been permitted. The Tamil Nadu Tea Plantation Corporation with its plantation in the Nilgiris which had stopped tea exports to bring down the price of tea states that it will resume exports from January 1985. In addition to 3 tea factories at Coonnor (1) and cherangode (2) with a total capacity of 30.7 lakh kg, it is setting up a Rs. 18 crores CTC tea factory at Gudulur with a capacity of 15 lakh kg. The question of continuing high tea prices despite last year ban on CTC tea exports (see vol XIV p 68) and the ceiling on tea exports for this year just referred to followed by the appointment of a one man commission to review the auction system which has not responded by bringing down prices as a result of the government order that 70 per cent of the tea should pass through auctions - all these have not brought down tea prices because of the basic supply—demand gap. Hence what is needed is an intensified programme of replantation and rejuvenation of tea

gardens and opening up of new gardens in the non traditional areas to meet the increasing secular demand for tea despite the price rise involved. On the coffee front, the Coffee Board announced in October that India's coffee export quota for 1984-85 has been increased to 42,1933 tonnes and a special additional quota of 1500 tonnes making a total of 43,693 tonnes. Compared to 41722 tonnes in 1983-84. The problem here is that coffee production this year is reaching the VII Plan target of 180,000 tonnes which means that the 5.5 per cent growth rate in production projected, a growth in demand of 10,000 tonnes for the quinquennium, the raising of the export target from 85,0000 tonnes to 109,000 tonnes and the extension of coffee plantation by 50,000 hectares of which 30,000 hectares will be in non traditional areas - all these VII Plan projections wil have to be revised upward. India is the only country in the world to have released many rust resistant varieties and to have evolved new geno types. All this should be taken into account for the VII Plan, which makes a provision of Rs. 158 crores for the present assumptions. There is need for an increase in the internal production target, areas to be planted and replanted, domestic demand projection and exports from what has been provided in the VII Plan.

Rubber

Rubber production for 1984-85 is set at 1,85,000 tonnes, against 1,75,000 tonnes in 1983-84 and the target of 2,00,000 tonnes. The demand for rubber in 1984-85 is set at 2,72,000 tonnes including 50,145 tonnes of synthetic rubber. The tussle between rubber producers and rubber user industries over (a) the gap between supply and demand, (b) the amount and timing of imports, and (c) the price differential continues. One matter is clear. The rubber users do not stand to gain by making domestic rubber prices equal to international prices, for this will lead to lowering domestic supply, making the supply demand gap wider and given our foreign exchange position, the government will not permit increased imports. Meanwhile the synthetic rubber industry should be given the incentives and resources to expand to make its contribution to closing the gap. The short term and long term programme adopted during the VII Plan period is: (a) Total area under rubber is 3,11,000 hectares of which, 2,09,000 hectares are mature, the yield from which can be increased by use of scientific cultivation practices and modern exploitation techniques, discriminatory use of fertilisers based on soil and land analysis, low volume spraying and use of chemical yield stimulants, which are to be intensified and continued: (b) long term measures for increasing production are new planting and replanting resulting in rubber cultivation in 3,00,000 hectares by 2000 AD of which 1,00,000 hectares will be during the Seventh Plan, including 60,0C0 hectares from non traditional areas. Production by 2000 AD will be 5,25,000 tonnes.

Cardamom and Cashew

Cardamom production and export have begun to increase and is estimated at 2400 tonnes in 1984-85 compared to 1200 tonnes in 1983-84. Also against the export of 28 tonnes for Rs. 5.44 crores during January-June 1983, in January-June 1984 exports have been 568 tonnes valued at Rs. 19.5 crores. Its price is internationally competitive so that

the gulf markets, Japan, Soviet Union, Scandinavia and FRG have begun purchasing Indian cardamom. Kerala reports that in order to escape the ceiling fixed by the Cardamom Board for individual participation in auction of Rs. 2 lakhs, there is a deal of smuggling from Kerala to Tamil Nadu by traders who break the ceiling and take advantage of the higher price and lower sales tax in TamilNadu. On the cashew front, the export of cashew kernels during January-July totalled 16,557 tonnes valued at Rs. 93.59 crores, which in volume terms was less by 15 per cent but in value term was 32.6 per cent higher than the 19,461 tonnes exported and Rs. 70.55 crores earned during January-June 1983. The total imports for the period was 13,578 tonnes valued at Rs. 14.65 crores. The Cashew Export Promotion Council commends the raw nut import policy which eased raw nut availability and the replacement of the USSR demand which was reduced by and-US Europeon countries demand. Its suggestion for action to improve export by exporting cashew in consumers packs with our brand name is important, is difficult as it involves building close and regular contacts with a large clientele but must be followed to assure the long term export growth of the cashew industry.

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III. Industrial Development in Tamil Nadu

Salem steel

Salem steel plant reports that its present production trend is such that the 1984-85 target of 16,800 tonnes will be achieved. In September it attained a record 1800 tonnes of stainless steel sales and a production of 1408 tonnes. It reports that it is in its third year entering a new phase — a phase of brand selling of stainless steel items. The brand name is Salem Stainless and covers utensils, coils or sheet and is being extended to coins, nuclear industry needs of columns and trays for the heavy water project at Manugur in AP etc.

Neyveli

The second mine cut at Neyveli was inaugurated in September end. It encompasses an area of 14 sq km and will in the first stage produce 4.7 million tonnes of lignite per annum. The project cost is Rs. 270.79 crores. The lignite from the second mine will feed the second thermal station of 630 MW, comprising 3 units of 210 MW each. It will be ready by mid 1985. Transmission lines linking the second power station to southern power grid are being erected, so that AP and Karnataka can get power from Neyveli. NLC propose to

increase its lignite fixed thermal generation capacity to more than 3500 MW, making it the largest thermal station in the country. It has a 630 MW capacity station, it is constructing another 630 MW plant and a request for a third plant of 1500 MW comprising five units of 500 MW each has been made to the Union government. Neyveli reports that apart from the delay in the delivery of the Hungarian equipment, it will achieve its scheduled expansion on time. Its 5 units open cost lignite mine, thermal plant, fertiliser plant, briquetting and carbonisation plant and clay beneficiation plant-earned Rs. 63 crores in 1983 due to improvement in design, capacity use and better maintenance.

State government units

The report of the comptroller and auditor general for 1981-82 reports that (a) 37 companies owned by the State government have made a loss of Rs. 77.03 crores, (b) 16 of them have a cumulative loss of Rs. 58.04 crores, (c) Tamil Nadu cements and Pallavan Transport account for 50 per cent of the cumulative losses, (d) there are 59 government companies on March 31, 1982 with a paid up capital of Rs. 195.33 crores, of which the State government's share is Rs. 166.57 crores, (e) the accounts of 21 companies are in arrears for different periods from 1976-77, the accounts of 5 companies being in arrears for 3-6 years, (f) of the 35 companies which finalised their accounts for 1981-82, 19 companies with an aggregate capital of Rs. 85.19 crores earned a profit of Rs. 6.84 crores, which was a return of 8.03 per cent. 15 companies with a capital of Rs. 27.34 crores sustained losses of Rs. 10.72 crores and (g) none of the companies which had finalised their accounts for 1981-82 declared any dividend.

MRL

The expansion of Madras Refineries—the crude distillation unit—was commissioned on October 30 and the second phase—the fluid catalyctic cracking unit will be ready by January 1985. With this the capacity of MRL will increase from 2.8 million tonnes to 5.6 million tonnes. This would limit the export of Bombay High crude, for MRL will be able to process it. In fact in October MRL received 50,000 tonnes of Bombay crude and bagan processing it. A Rs. 1.75 crore waste water pollution control plant was inaugurated in October. It can treat toxic effluents from the refineries at the rate of 2,000 cubic metres an hour. Also a Rs. 2.3 crore micro processor digital control system in Madras Refineries was inaugurated which will control the entire operations of the expanding refining facilities, to ensure optimisation, faster response, adoptation to newer control strategies, data logging and management information system.

BHEL

The Ranipet boiler auxiliaries plant of BHEL set up to manufacture electro static precipitator, air preheater and fans (see vol XI p 278) in its second year of partial working in 1983-84 produced 34,000 tonnes which is 56 per cent of the ultimate capacity which will be 57,000 tonnes to be completed shortly. Ancillaries have been set up by 43 entrepreneurs in the area adjoining the factory, contributing 5,000 tonnes to the main plant in 1983-84, against an ultimate contribution of 15,000 tonnes. The

plant has earned in 1983-84 a profit of Rs. 6 crores. For 1984-85 production has been fixed at 37,000 tonnes. BHEL Tiruchi has won a Rs. 32 lakh order for Bharat Petroleum Pumps, Bombay for the supply of valves of different sizes for use at Butcher Island. It has executed orders for Rs. 25 lakhs for MRL and Rs. 55 lakhs for Hindustan Petroleum Vishakapatnam.

SAIL supply

Responding to grievances of steel consumers from the State and the region generally, SAIL states that supplies of HR coil was low in April-June to the South because of serious shortfall in production at Rourkela due to acute power shortage. So special efforts were made to increase the supply in July-September when Rourkela production improved. Thus for April-September 48,334 tonnes was supplied which was 70 per cent of the State and regions entitlement. The unanswered problems are (a) why other regions who have no entitlements or lower ones are being supplied or oversupplied, as pointed out in the last issue p 772 and (b) why the distribution of these scarce units—HR coils, CR coil and sheets etc. are being based on 1981-82 to 1983-84 offtake and not on an assessment of their demand as done for the SSI Corporations.

MEPZ

The Madras Export Processing Zone authorities report taking several advance —actions to meet the several enquiries for opening operations in the zone. Work on roads, water supply and power are being expedited as 1,340 application —183 for garments, 212 for electrical and electronics, 151 for engineering, 190 for leather and allied products, 172 for chemicals—are being processed including 49 definite project proposal for a turnover of Rs. 105 crores and an investment of Rs. 30 crores. 100 units plan to export Rs. 100 crores from the zone. It is expected that the first set of applications will be cleared by the board of approvals in November and the zone will be commissioned by September 1985.

B and C

Financial institutions led by IDBI finalised an assistance package to reopen the 107 year old B and C mills on certain conditions. The financial relief will need 'contribution' by the Union, the State government as well as management and labour to ensure that the funds do not go down the drain once more. The conditions include the Union government extending fiscal relief and ensuring an adequate supply coal on priority basis and the State government assuring the mill with uninterrupted power at concessional rates labour has to ensuring productivity at 1.84 lakh metres a day and there should be industrial peace while the mill is being nursed back to health. It is doubtful if this relief package will nurse the obsolete mill back to health.

Silk

The [illegible] announces in September that it is embarking on a massive programme of silk production through the developmnnt of sericulture. At the end of the VII Plan at least 1 lakh acres will be under mulberry culti-

vation as against the present 65,000 acres which is to be increased by 7,500 acres this year. During the plan, 1 lakh employment will be created in addition to the existing 3 lakhs and the State will become self sufficient in silk production. Non traditional areas like Ramanathapuram have developed all the infrastructural facilities to have silk worm seed farms. Besides the ones functioning at Madurai, Dharmapuri and North Arcot districts, one such farm has come up in Pillavakal in Srivilliputtur, where mulberry farmers make between Rs. 10,000 to Rs. 32,000 per acre.

Textiles and sugar

The South India Cotton Association reports that cotton buying by mills was on a meagre scale in October due to the arrival of the new crop, lethargy in yarn markets and the bonus dispute. Cotton prices have declined: weather conditions are good in cotton sowing tracts and the progress of the crop is reported satisfactory. On the sugar front the sugar mills in the State face the prospect of under utilisation of capacity during the new crushing season beginning November 1984 due to the reduced availability of cane. The area under cane has been reduced because farmers are not satisfied with the Rs. 30 over the Rs. 135 per tonne fixed by APC and have switched over to the other crops. This will reduce next year's sugar production even below 1983-84 which was 5.5 lakh tonnes against 8.5 lakh tonnes in 1982-83. The Union government has granted a license to start a cooperative sugar mill at Thalainagar at a cost of Rs. 13 crores and a daily crushing capacity of 1250 tonnes, starting in mid 1986. The mill will collect a minimum of Rs. 1.3 crores from cane growers and non growers with a share of Rs. 200/- and a minimum of 5 shares required to register one acre of sugar cane in the area of mill operation.

Leather

Leather exports in the first four years of the VI Plan have been stagnating around Rs. 416 - Rs. 425 crores. The target for 1984-85 of Rs. 550 crores has now been given up. Leather exports in April-August 1984 are Rs. 202.46 crores and for the year Rs. 495 crores has been established as the revised target. Given the inflation in world markets this means our exports have been declining due to the large home market consuming nearly 66-70 per cent of its production, to the strong competition from China, Taiwan and South Korea and the lack of technological upgradation to meet the demands of fashion dominated western markets. UNIDO has recommended Indian industry tying up with foreign firms in joint ventures and producing some of chemicals now being imported. The commerce ministry has constituted a committee to go into the requirements of machinery and technology in the organised and cottage sector of the leather industry to boost export of leather products. The committee will study the existing state of the leather industry and recommend measure to reorient government policy to achieve the VII Plan leather export target and examine the possibility of establishing a national design centre to promote exports of value added leather products.

Private sector reports

Madurai coats reports for the year ending 30 June 1984 a 6 per cent rise in turnover at Rs. 149.7 crores, capital expenditure of Rs. 12.20 crores, exports

at Rs. 17.95 crores and the sophisticated in house dippling plant was commissioned. It has completed the 2 phases of the Rs. 20 crores to strengthen further its manufacturing and pursue its policy of product diversification and quality improvement.

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IV. Education, Science and Health

Unrest in educational Institutions

Students of all educational institutions in Pondichery went on strike in October and took out a procession to Raj Nivas to protest an alleged attack on a student and his family members by the Police. Students of the Government college, Mottukupur went on strike also in October against the irregular PATC bus service and did not allow buses to operate. It is gratifying that the cases of unrest are declining and are bocoming few and far between.

Educational reform

There has been a short fall in the attainment of educational targets at every level. In 6-14 age group with the drop out rate continuing to be high, the number of children not going to school has remained constant and high and the enrolment rate has kept pace with the demographic rate. Now that 93 per cent of primary schools in rural areas are located within a walking distance of 1.5 km and 76 per cent of middle schools within 5 km distance, the universalisation goal does not have these obtacles. But single teacher schools are 1.5 lakhs, schools without black boards 1.8 lakhs, 40 percent of rural schools have no potable water or latrines. These deficiencies should be met even as modernisation and experiments in teaching and computer learning are launched. The other gap is vocationalisation of education particularly at +2 level. Only 12 states have adopted this reform and only a few among them are working it well. The first curricula for the proposed Open School system in the state for school drop outs to complete their X Standard was launched in October. The government is implementing the system by providing education through correspondence cum contact courses from 1984-85. The objective is to enable working adults and house wives to continue their education. To begin with 2500 students, preferably from SC & ST, will be admitted for those of 15 years of age and who have the VIII standard. After a 12 months course from January to December the SSLC exam will be held in February and results published in April. There will be 2 courses — X standard (Academic) and X standard (vocational), starting with the Academic course. The support system for this programme will be Research Centres with libraries in different regions and Radio and TV braodcasts. The Nutritious

Noon Meal programme now covers 80 lakh school and non school children besides 2 lakh old, poor or handicapped adults. The latest to benefit are the 10-15 age group. The results reported are (a) increased school enrolled from an average 1.75 lakhs to 2.63 lakhs in 1982-83 and 3.82 lakhs in 1983-84, (b) improvement in their health status—weight, arm circumference, and fall in incidence of common ailments as primary complex and night blindness. If these reports are reliable, two further actions are needed. First, a bench mark survey is needed by a professional body to identify the loopholes and weaknesses, and second action must be taken to involve the local community fully so that the initial enthusiasm does not wane. This programme must be pushed to become a national programme. At the university level, there is some question about the UGC proposal to test post graduate students and establish a merit list to whom alone the UGC, PhD & MPhil Fellowship are to be given. First, for a vast sub continent like India to centralise the award of fellowship from one remote place is questionable. Second to conduct such a test is to confess the unreliability of the MA & MSc examination. Finally and importantly the tests can only probe one's memory, which is no guide to the research capacity of a person, apart from turning UGC in to an examining body. Japan is to grant an aid of 500 million yen (Rs. 2.45 crores) to improve Delhi university's educational and research equipment, particularly in science and the instrumentation centre. The Bharathidasan university, Tiruchi is to grant affiliation to two new women's colleges, one to be started by the National College Management and the other by the Delhi Educational Trust. The legislative assembly passed a bill amending the private schools and private colleges Act to make it obligatory for private institutions to obtain the approval of the competent authority before closing down either the institute or the course.

Adult education

The Seventh Plan envisages a joint action by Union and states to realise the targets of universalisation of elementary and adult education by 1990. The literacy drive in particular is to be undertaken on a war footing. The State health ministry emphasises the need for voluntary agencies to impart health education to the masses. Voluntary agencies could help in creating health consciousness especially among pregnant women, since the well being of a child also depended on the way it was born.

INSAT

Planning on the next generation INSAT-II series of statellites has started even as the programme for the launching of INSAT-IC is being finalised. SAC is working on these and on launch vehicles to put these satellites into orbit in the 1990s. INSAT-IC will be in orbit in June 1986. The question of under utilisation of INSAT-IB is discussed and it is pointed out that 28 earth stations had been readied by P & T, 1800 two way voice channels are working, so that 90 per cent of the target is attained and 60 per cent of capacity is used. Through radio net working, Delhi programmes are being sent to all metropolitan centres. 10-12 weather pictures are received daily from INSAT by the department of meteorology. Regarding TV, a new centre is being inaugurated every ayd and 100 million people are watching TV, through

INSAT and educational programmes are being telecast by UGC. SAC reports that in 1986 a SLV will be launched which is an augmented SLV which can put a 150kg payload into orbit, followed by PSLV which will launch operational remote sensing satellite of 1000 kg payload. The second generation of INSAT will provide increased number of transponders for telephone traffic, better inter connectivity between location and capacity for new services as well regional services in TV broadcasting and radio.

Technical education

The new programme of self financing polytechnics in the state lack laboratory facilities, trained teachers and adequate student accomodation. Of the 4 new polytechnics started in Thanjavur districts which are mere money spinners in that students have to pay Rs. 8000 to 15000 for a seat, one does not have a lab with the second year students being taken to Annamalai University once are twice a week, a second even after a year functions in a thatched shed, a third works in a nursery school and only one had lab and hostel facilities. This is a disturbing situation which needs review and action. The All India Islamic Foundation announces that it will start in Madras an engineering college from this academic year. The project costs Rs. 5.60 crores and annual expenditure Rs. 30 lakhs. The college is starting in the premises of the crescent Residential Higher Secondary School at Vandallur. Other such colleges are being planned, which is a chaotic situation for the state.

Science

The VII Plan working group on Science & Technology has identified 16 thrust areas including agriculture, biomass, fertilisers, energy conservation, power, health conventional and non conventional energy sources and metals for intensive R & D work. The various missions are to be set up in these areas within the first 6 months of the 1st year of VII Plan. The working group on non convenional energy has recommended an allocation of Rs. 3000 for exploitation of renewable and non conventional energy sources for immediate application to rural areas during the VII Plan. It proposes to cover atleast 10,000 villages with all solar powered appliances as in Kilakurichi where a package of renewable energy system has been installed to benefit 60 families, using 20 photovoltaic operated street lighting units, a photo voltaic colour TV set, a community radio and 2 water pumping windmills. Each family has been given solar cookers and improved chulas. A solar pump has been especially designed to reduce maintenance requirements to the minimum. The system consists of a thermal device using air and water on a diurnal cycle with solar heating and noctural cooling, according to a report in Appropriate technology. The South Central Railway for the first time used solar power for signals utilisation and operation at Nancteria railway station near Guntakal. During 1984-85, it is proposed to instal 1,50,000 biogas units in the country, including 10,000 in Tamil Nadu, according to the Department of Non conventional energy sources plus some of the lands not cultivated being planted with fast growing trees, with a rotation cycle of 4 years. Anitta Instruments, Delhi, announced manufacturing and marketing a new data acquisition system for signal recording and processing in multiple channels. It is a multi channel wave form recorder. ISI states that it has prepared a standard specification for

vacuum flasks prescribing suitable material and workmanship. Rourkela reports recently commissioning a repowered DEC—630 Czech shunting locomotive fitted with a Kirloskar engine at a cost of Rs. 20 lakhs. CELRI, Karaikudi announces the development of a process for the electro chemical oxidation of the chemical, isoborneol to camphor. A Rs. 6 crore project to set up a demonstration wind farm and a plant to manufacture wind generators in Gujarat has been undertaken in the joint sector (Gujarat Industrial Investment Corporation and Western Indian Electors, Pune) to produce grid duality electricity by May 1985. IIT, New Delhi have suggested a new economic process to get oil from lignite. The Tamil Nadu State Council for Science & Technology has set up 10 panels for finalising the VII science & technology plan for the State.

Health

The Union Health ministry reports that it has cleared an indigenous developed leprosy vaccine, which having been successfully passed through preliminary tests in now to be tried on humans. The King Institute, Guindy is being provided the facility to store blood, including rate groups collected throughout the State. It is being upgraded as a premia blood collecting institution catering to the needs of all governments hospitals in the State. A 50 bed unani hospital is to be built in the campus of the Regional Research Institute of Unani Medicine in Royapuram.

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V. Employment and Labour Relations

The Union Government reports its disquiet over the tardy progress made by NREP. In 1983-84 against the available Rs. 538 crores, only Rs. 394 crores have been used. In 1984-85 Rs. 460 crores plus the carry forward of Rs. 144 crores are available (totalling Rs. 604 crores) and till July only Rs. 53.46 crores (8.9 per cent) have been used. The use of food grain in 1983-84 was only 1.45 lakh tonnes, giving a per capita availability of 0.49 kg., Rs. 6.1 crores were advanced as subsidy for the food grain programme in January and yet this declining trend in food grain distribution is recorded. Against the VI Plan target of generating 1,500 to 2,000 million man days, in the first 4 years only 1,442 million man days have been generated and during the current year only 56.64 million man days till July. The slow progress is attributed to organisational bottle neck (which is another word for lack of political will and motivation), lack of proper planning and selecting the appropriate project mix. Along with wage rates, these have contributed to the increase in unit cost at the rate of 15 per cent per annum. The official review shows that 5 states have not reached

the Union outlay in 1984-85 and 4 states are in arrears of over Rs. 40 lakhs on account of previous years. Agriculture and employment are complementary and NREP should be structured to recognise this fact as only agriculture can absorb the large annual entry into the labour force. On the other, an enormous amount of work is waiting to be done in agriculture such as land and water conservation on farm development, canal lining, drainage, soil conservation and reclamation, desilting of tanks, construction of rural roads and social forestry. This calls for micro planning at the district and block level. Consolidation is another vital area which is needed both in newly irrigated areas and dry farming region. All this will increase the labour intensity of Indian Agriculture. This is confirmed in an official study over states that the number of job seekers has grown from 4.33 million in 1979 to 29.67 million in April 1984, with educated unemployment constituting the bulk of them. It further points out that as the organised sector can only absorb 12 per cent of the labour force, a large number will have to find self employment. The trend of growth in the public and private sectors, in railways and PTT though doubled in the last 3 decades has not kept pace with the annual demand. The government estimate that the backlog of educated unemployed who form 11.5 percent of the labour force and account for 33.2 per cent of the total unemployment is growing fast. The employment problem is a double one: to find jobs for this growing number and even more serious how the vast body of the rural labour force can be assisted to earn a minimum living wage-living for the family. Here the record of NREP referred to above is not only wanting in not attaining targeted number of mandays of employment but equally serious NREP has not helped to raise rural wages and so enabled the mass of landless unorganised workers earn a living wage. These are the double tasks facing development planning in the last year of the VI Plan and in the VII Plan. The Union government also reports that there is a declining trend in the growth rate of public sector employment. In 1980-81 it registered 2.7 per cent growth, in 1981-82, 2.5 per cent, though in absolute terms it increased from 154.84 lakhs to 158.78 lakhs. In the private sector employment increased from 2.2 per cent in 1980-81 to 2.8 per cent in 1981-82, from 73.95 lakhs to 76.06 lakhs. The manpower planning and employment generation district councils should be equipped to design the scope for self employment among the unemployed, as the prospects of salaried jobs are limited. A study shows that the backlog of unemployment will increase to 46.26 million by 1985 against 12.02 million in 1980. The councils should be given the staff to do the job. The State government has asked the Union to allocate additionally Rs. 35 crores for loans under the self employment scheme for unemployed graduates, as it has disbursed Rs. 32 crores for 25,000 in the first round. The Union Government announced in October that it will undertake studies on various forms of employment in the unorganised and informal sector taking into consideration the peculiarities of operation in these occupations, including the nature of recruitment which renders the compliance with statutory provisions difficult. The ministry also stated that a tripartite monitoring cell has been set up to review the success of the labour participation at the board level in the public sector undertakings. At present their participation in the shop floor level is compulsory and it is their board participation which is to be reviewed by the cell.

The Union ministry has written to the State governments to set up such monitoring cells to review labour participation at the board level in State owned industries. It admits that the scheme lacked teeth to make their participation compulsory in the private sector. The Union government announces in October that the arrears of provident fund contributions payable by the employers to the PF authorities is Rs. 41 crores in 1984-85. 70 per cent of the arrears had piled up with jute mills due to the liquidation of establishments and litigation.

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VI. Other Items

AP Teacher Awards and USSR Book Exhibition

In early October the Jury to decide awards to the outstanding teachers of the 7 universities, affiliated colleges and junior colleges met and chose 40 teachers for the 1984 awards. These awards are made by the chief minister on November 1, the day when Andhra Pradesh was formed as a State. The committee recommended procedures for the first selection in each university by a committee presided by the Vice Chancellor. Also in early October there was an exhibition on Soviet books published in Moscow in English or Tamil. What was impressive was the wide variety of the themes in science, history and culture covered by the publications. The need for further use of the books by Indian universities was stressed.

Import-Export committee and State Council for Science & Technology

A meeting of Union government committee on imports and exports set up by the ministry of commerce met in Madras in mid October. The State government and a few economists gave evidence before the committee, suggesting various ways by which exports could be expanded and imports concentrated on essential items. There was also the view that exports should be developed to the extent that they pay for essential imports plus debt servicing obligations. As noted earlier the State Council for Science and Technology which met in mid October in its first formal session, received reports on all India S & T meetings and proceeded to establish guidelines for the development of Tamil Nadu's Science & Technology sector of the VII Plan. It established 10 panels and a time frame, wherein the S & T sub Plan would be ready by March 1985.

SRC & TNBCE Annual Conference

A meeting of the executive committee of the Tamil Nadu Board of Continuing Education met in mid October to prepare the agenda for the Triennial General Body meeting and the Council of the Board.

The Annual General conference of SRC & TNBCE met at the end of October on the theme the new 2 year package programme of Adult Education. The minister of education presided over the conference (it was the first time a minister appeared at a public function since the Chief minister's illness in early October) and called attention to the practical and effective work of the AE centres in Pudukottai. The conference was inaugurated by Mr. Veeraraghavan, Adviser, Education, Union Planning Commission who stressed the gap filling role of continuing education. The five commissions of the conference worked out the guidelines on the curriculum, training, SC, ST and women priority and administration of the new programme and Dr. Aram, Vice Chancellor, Gandhigram University delivered the Valedictory pointing to the effectiveness of AE at the Athur Block. At the Triennial General Body which elected the officers and the new council, Mr. Anil Bordia, Additional Secretary, Ministry of Labour delivered a most instructive lecture on lesson to be learned from China's adult education programme. The Council reviewed the work of TNBCE & SRC and requested TNBCE to be the Apex body for all voluntary agencies working in adult education in the State.

IIC

In the India International Centre, the national seminar on the paper, the Mid Year Review of the Economy 1984, prepared by Dr. Malcolm S. Adiseshiah was reviewed by the 50 members attending it. Mr. L. K. Jha inaugurated the seminar emphasising his agreement with the paper and suggesting that employment generation should be the economy's focus. Mr. Patodia who chaired the seminar brought out the salient features of the paper and suggested that inflation might be at a lower level than predicted in the paper. In the discussion that follwed buffer stocks, free trade zones, plan and non plan outlays, subsidies, BOP and poverty and employment were the main points of discussion. There was also a panel presentation on International Monetary and Financial problems based on the report by the committee of international experts headed by Prof. Khusro, where the general agreement was the seriousness of the problem facing the developing countries and the deadlock as to their resolution. There was also a meeting of the Board of Trustees at which the membership fees and restaurant charges were raised. The budget for the current year was reviewed and revised and that for 1985-86 approved.

FICCI and Calicut University Commission

FICCI has established a committee chaired by Mr Bharat Ram to examine and outline the role of the private sector in the VII Plan. The committee met in October and set forth the broad parameters of the rate of growth of industry that it can help with, the resources needed, the ICOR assumption and the policies and programmes that are to be followed. It is to meet in November to finalise the proposal. The Calicut University Commission met in October, starting its work in Tiruchur where it visited the Department of Economics and the School of Drama and two private colleges. It also visited Tellichery and saw the Department of English and one college in Tellicherry and one in Mahe. It also met the managements of the private colleges and obtained their views on

higher education problems in the Calicut University area.

November Development Seminar

The paper for the November, seminar Recent Demographic trends in Tamil Nadu 1980-81, by Christophe Guilmoto together with a summary of discussion of the paper at the seminar chaired by Dr. K. Nagaraj appears as the first article.

Second article

A note on Planning and Implementation at the district level appears as the second article.

Special Section

The second special issue of the Bulletin for 1984 contained in this issue comprises 4 selected articles from the Fourteenth Research Methodology workshop held at ICSA, Madras in June on Urban Problems.

a) Urbanisation and Educational Growth by Mr. N. Jayaram, Bangalore University, Bangalore

b) Spatial aspects of urban systems: Cases from Karnataka by P.D. Mahadev University of Mysore, Mysore and T. Vasantha Kumaran, University of Madras.

c) Visakapatnam and Vijayawada: A study in constrasting patterns of urban influence on surrounding rural areas by C. R. Prasad Rao and C. Chakrapani, Andhra University, Waltair

d) Review of urban policy by Waheedudin Khan, Centre for Social and Economic Studies, Hyderabad.

M I D S News

On his return from the study tour of the People's Republic of China, Prof. A. Vaidyanathan held two sessions in the Institute to share his reflections about the Chinese economy with special reference to the latest reform measures with their thrust on individual initiatives and material incentives to increase production. Mr. N. Ram, Associate Editor of *The Hindu* who had spent sometime in China earlier this year also participated in these discussions.

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Prof. Liu Chuangyuan, Associate Professor of Political Economy and the Deputy Head of Department of Pakistan and Bangladesh Studies, Institute of South Asian Studies, Chinese Academy of Social Sciences visited the Institute on Wednesday, 5th December. Prof. Liu who was in India as the guest of the ICSSR under the Indo-China Cultural Exchange Programme spoke to the members of the Institute about the reconstruction of major cities in China. He answered several questions raised by members of the Institute about the recent changes in the Chinese economic policies.

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Mr. Michael Tharakan of the Centre for Development Studies, Trivandrum held a seminar in the Institute on Wednesday, November 28 on "Factors in Modernization, Travancore: 1891-1947".

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Mr. J. Selvaretnam, Ph.D. scholar of the Institute held a seminar on Friday, 7th December on "Aspects of Changes in the Cropping Pattern in Kanyakumari District 1957-58 to 1983-84" based on his research on the subject.

* * *

Under the joint auspices of the Rajaji International Institute of Public Affairs and Administration, New Delhi, the Institute for Social and Economic Change, Bangalore and MIDS organised a national seminar on "Decentralised Planning and Implementation" which was held at the Institute for Social and Economic Change, Bangalore on November 29, 30 and December 1. The seminar was attended by about 40 participants from different parts of the country and included administrators, academics and persons from public life. Prof. A. Vaidyanathan, Mr. S. Guhan and

Dr. C. T. Kurien from the Institute attended the seminar. Papers for the seminar were presented by Dr. Malcolm S. Adiseshiah, Mr. S. Guhan and Dr. C.T. Kurien. The participants of the seminar were unanimous in expressing their concern over the increase in centralisation of power and administration in the country and the very visible erosion in the political will for decentralisation. They were equally unanimous in affirming that the reversion of this tendency and the strengthening of decentralised administration providing for effective popular participation in decision making was necessary to make the political processes genuinely democratic and to ensure that planned economic developments conforms to the social objectives of planning. The seminar also identified a number of areas where detailed work remains to be done in order to make decentralised administration and planning a reality.

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Recent Demographic Trends in Tamil Nadu, 1961-81

by

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Institute of Econbmic Growth, Delhi

O. Introduction*

The growth rate of the population of Tamil Nadu (TN) has sharply declined during the last decade. This new situation requires a proper assessment in order to understand the actual determinants of this decrease. But our knowledge of the demographic trends remains impe·'ect even at a national level, and the t /c components of the demographic changes cannot be analyzed by the civil registr-ation systems-theoritically the best source for the vital rates- which does not appear to be significantly less inaccurate in TN than elsewhere in India : However, with the help of various indirect methods of estimation, several important features can now be ascertained. The purpose of this paper is to sum up, at the beginning of the 1980s, all the different informations on the population growth which can be drawn in from the consecutive censuses and the more reliable surveys launched in the 1970s. We have tried to review the broader aspects of this growth in order to supply the social scientists with reliable materials for their analysis[1], keeping in view the variations which obtain between the Tamil State and the rest of the country.

O. 1 Sources of demographic data

At a state level, the main sources of demographic data are the following :

1. Decadal censuses

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* The author is a research student at the Institute of Economic Growth, Delhi University. His stay in India has been made possible by the Indo-French exchange programme. Additional support from the ORSTOM, Paris, and Dr. P. Cantrelle is gratefully acknowledged. Thanks to D. Arbonville and R. Lardinois for their comments.

1. Bibliographic indications are given in the foot notes for further details.

2. **Series of demographic sample data**

3. **Series of civil registration data.**

The tradition of the Census of India which dates back to the 1870s provides a remarkable bulk of data ; the degree of completeness of the censuses though changing is sufficiently satisfatory(1); the greatest trouble however lies in the precision of these data. In a population where mass illiteracy still prevails, some of the most serious errors are the mis-statements of age and the probable under-enumeration of young children(2). To cope with these inaccuracies, one has often to rely upon mathematical models which turn the demographic analysis into sophisticated statistical debates hardly accessible for the non-specialist.

The sample Registration Scheme (SRS) has given to the demographers the first reliable data on vital rates (viz; birth and death rates) by state. Other surveys conducted on the sampling basis have brought complementary data on age-specific mortality rates, differentials of fertility etc... Through a careful comparison of these two sets of data (census and SRS data), it is now feasible firstly to test the quality of these different estimates and then to detail the specific components of the demographic changes in TN.

As to the civil registration data which pertain to a lesser administrative level (towns, districts), we have decided not to use them at all. A recent analysis(3) has enlighted the gross deficiencies they suffer all over India; the health registration completeness (i. e. the percentage of deaths declared among the deahs occurring) turned out to be 67% in TNbetween 1961 and 1971. And since the level of underregistration differs dangerously among the districts of a same state(4) no practical use can be made of these vital rates without risk of sizeable distortion.

1. Overall Growth

The basic equation of population growth is as follows :

Population increase = Births - Deaths + Net Migrations where the factor (Births - Deaths) is called the natural increase. This natural increase can be estimated in TN with the help of the SRS data while the population increase and the migrations are supplied by the consecutive censuses, we will devote this chapter to testing the accuracy of both sources by examining how much they tally with each other.

The SRS data provide a series of yearly vital rates from 1971 to 1980: In order to give estimates of the vital rates for the decadal period, we have computed the average value of the 1971-80 figures for rural and urban areas. But it is well known that the SRS data are somewhat

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* (1) cf Census (1982b). It has been argued that since the 1971 census might have been unusually defective, the growth rates could be substantially inaccurate. Yet the absence of confirmation for this hypothesis compels us to disregard it here.

(2) See for example the Census Evaluation Study (Census, 1983 b).

(3) cf Census, 1982 a.

(4) For example, the birth rate in 1979 is 17 per 000's for Dharmapuri District as against 34.7 per 000's for Madras. No plausible explanation can be given for such a variation, except the differential level of under-registration of events. (Data are from Vital Statistics of India 1979).

erratic for their quality varies from one year to another just as the quality of monsoon does. The global trend of the vital rates is however clearly downward (linear correlation : $r = -.821$) except in urban areas where the estimates are highly uncertain.

TABLE 1

Vital rates in Tamil Nadu 1971-1980

(SRS Average)

	Birth rate* per 000's	Death rate* per 000s'	Natural increase 1971-80** (%)
Rural	31.6	15.7	17.2
Urban	26.1	9.00	18.5
Total	30.0	13.7	17.68

* Yearly figure

** Decennial figure

(Source : SRS)

These figures will be commended further below. On the other side, the natural increase can be inferred from the censuses by substracting the decadal net migrants from the general increase :

— net inter-decadal migrants:-82.7(000s)

— natural increase (71-81 increase-net migrants) 17.70% over ten years.

Source : Census (1983c)

It can be seen that these two different estimates of the natural increase from 1971 to 1981 (17. 68% and 17. 70%) match remarkably well together, even when the migrations of Tamils abroad remain ignored (no data available). The quality of the SRS data seems to be excellent in TN; it must be stressed that the All-India SRS data are far from being as accurate. *Table 2* depicts the discrepancy found for these All India data.

TABLE 2

Natural increase in India 1971-81

Average birth rate (SRS 71-8)	34.6 per 000's
Average death rate (SRS 71-80)	14.7 per 000's
SRS-based natural increase (per year)	19.9 per 000's
Census-based natural increase (per year)	24.7 per 000's

(Source : SRS, 1981 Census)

But bearing in mind that the natural increase is the difference between the two vital rates, it may well be also that both estimates are *equally* understated in TN and that the perfect equation arrived at is the by-product of similar under-estimations.

Coming to the examination of the demographic growth for the past thirty years, *Table 3* sheds light on the deep changes which took place during this period.

TABLE 3

Population Growth, Tamil Nadu and India, 1951-1981

(percentage decennial increase)

	1951-61	1961-71	1971-81
Tamil Nadu	+ 11.85	+ 22.30	+ 17.50
India	+ 21.52	+ 24.80	+ 24.75

(Source: 1981 Census)

This clearly indicates how Tamil Nadu has undergone deep transformations in its growth. It has been able to curb its growth rate during the 1970s through a rapidly declining birth rate as will be detailed below. At the same time, the growth rate in India remained roughly stable since the substancial fall of the birth rate was almost completely offset by the decreasing mortality and the international immigrations. The growth rate for 1951-61 was extremely low and so far it has not been possible to explain what actually happened by the time of the formation of TN (then Madras State). Excessive mortality and heavy out-migrations are the likely causes for it but the phenomenon would deserve full re-examination.[1]

2. Natality and Fertility

2.1 Natality

The birth rate (ratio of the births to the total population in a given year) is an indirect index of proper fertility (number of children per woman) : it may be disturbed by an unbalanced sex ratio and still more by the changing age distribution (the birth rate being dependent on the share of the adult population aged 15-50 years). Nevertheless the data remain by and large comparable from one State to another

1. The only study on this period (Vaidyanathan, 1961) do not offer credible estimates for the vital rates in extremely low fertility is improbable in a context of the growing proportion of the population aged less than 10 years.

TABLE 4

SRS Birth Rates 1971-80
(per thousand of population)

	Tamil Nadu	India
Rural	31.6	36.1
Urban	26.1	28.6
Total	30.0	34.6

* probably understimated (Source: SRS)

The share of births in the population is significantly lower in TN than in the country as a whole, in particular in rural areas. The average birth rate in TN is one of lowest among Indian States and the latest available SRS estimate (1981) puts it at a still lower *27. 8* per *000's* (as against 33.9 per *000's* at All India level). As said previously, the decline has been linear between the last two censuses and is likely to have begun in this part of India earlier than any where else. *Table 5* presents various reliable estimates of the trend in birth rates since 1951; most of them are based on mathematical analysis of the age structure of the census populations.

TABLE 5

Birth Rates in Tamil Nadu and India
(per thousand of population)

	Tamil Nadu	India	Difference
1951-61			
Srikantan & Chaudhri	37.9	44.9	-7.0
1961-71			
Reg. Gen. : quasi-stable technique	37.5	40.6	-3.1
Srikantan : unadjusted	36.7	41.3	-4.6
Bhat & al.: projection method	36.8	40.9	-4.1
1969-70			
Preston & al:	35.5	39.5	-4.1
1971-81			
SRS average	30.0	34.6	-4.0
Bhat & al. : Preston's technique	30.2	35.7	-5.5
Reg. Gen : Brass technique	—	35.8	—

(Source: Premi (1982), Bhat & al. (1984), Census 1984a)

The level of the birth rates in Tamil Nadu has been conspicuously low for at least the past twenty years. This characteristic feature had not yet drawn the attention of the demographers who most of the time are more interested in present-day figures related to the success or failure of the Family Planning Programme than in long historical trends. We will come back to this point after examining other evidence from the censuses.

2.2 Child-Woman ratio

The most elementary measurement of fertility which is derived from a census consists in dividing the number of young children (0-4 years) by the number of the women in child-bearing age (15-49 years). Thus one obtains the child women ratio (1). But one has to bear in mind that the children aged less than 5 years counted in the census are those who survived from the time of their birth till the date of the census; accordingly due to differential child mortality in the different states, the child-woman ratio remains a very crude indicator (2).

TABLE 6

Child-Woman Ratios
(per thousand)

	Tamil Nadu	Kerala	India
1961	547	638	659
1971	531	550	655
1981	435	409	546

(Source : census (1984b)

TN exhibits one of the lowest ratios among Indian states. Actually, it ranked first in 1961 and 1971 but has ceded the first place to Kerala in 1981. Kerala experienced the fatest demographic change in India and is now considered to have reached a further level in the "demographic transition" (evolution of vital rates on the pattern of the Western experience). But what is striking is the fact that long before the beginning of the massive family planning campaigns (at the end of the 1960s, culminating in the 1970s) the proportion of children in TN in comparison with adult female population was far below the national average.

2.3 Parity of Women

The 1981 census provides some very interesting data concerning the number of children born (3) per woman. Let us first point out that such data are most probably imperfect and underestimated; the older the women, the more likely they tend to fail to mention their children who died soon after their birth or do not live any longer in their vicinity (case of married daughters in particular). The data concerning the sex ratio of their offspring according to the age of the women will illustrate our caution:

1. Other age-groups can be as well utilized; Children 5-9 years, 0-9 years old; Women aged 15-44 years. The trend remains similar whatever the technique used.
2. Failure to count properly the first age-group (omission, age mis-statement) is another grave shortcoming of this method.
3. But not necessarily surviving at the time of the census.

TABLE 7

Sex Ratio of Children per Age of Women

(females per thousand males)

Age-Group	15-19	20-24	25-29	30-34	35-39	40-44	45-41	50 & more
Sex Ratio	939	934	933	926	914	898	881	862

(source : census (1984b)

Such a gradual fall of the sex ratio cannot be explained by a similar trend in the sex ratio at birth (which remained more or less constant at a level of 940-950) but indicates a steady tendency to omit one's daughters.

Nevertheless, it can be assumed that such imperfections in the data are approximately the same for each state, which would allow us to compare them.

Table 8 shows the data for TN, Kerala and India. We observe again that fertility is clearly lower in TN than in India as a whole and since the women aged 50 years and more had most of their children in the 1950's the figures confirm the old character of reduced fertility in TN[1]. As to Kerala we note that its recent fertility declined is distinctly depicted for women aged less than 35 years; but the level for older women indicated that Kerala moved very quickly from a high fertility level (comparable with all India data) to the

TABLE 8

Average Number of children born per women by age

Age	Tamil Nadu	Kerala	India
15 — 19	.11	.06	.173
20 — 24	.95	.74	1.13
25 — 29	2.17	1.94	2.41
30 — 34	3.09	2.91	3.46
35 — 39	3.79	3.89	4.26
40 — 44	4.03	4.49	4.71
45 — 49	4.18	4.99	4.99
50 — +	3.90	5.03	4.74

(Source; Census (1983C)

1. Moreover the figures for TN are below those for every of other state for the three oldest age groups

lowest registered in India. Interestingly enough, it is seen that the curve for Kerala is below that for TN in the case of women aged 35 years and less; now, the women aged 35 years in 1981 had their children around 1970-71 on an average([1]) and it is precisely during this period that the birth rate in Kerala caught up with the level of TN:

This shows that using different sets of even imperfect data permits us to have a clear picture of the demographic changes in different parts of India.

When the data on parity are compared for other States (not depicted on the figure), two main conclusions can be drawn:

1. Data regarding older women (and thus pertaining to the 1950s and 1960s) show that parity of Tamil women has long since been inferior to the national average.
2. During the recent years, TN still witnessed a low fertility few but other states (Kerala, Punjab, Gujarat) have undergone a sharper decline.

Similar data are available for rural and urban areas but the probably different level of omission (mainly related to differences of education) forbid us to use them without risk.

2.4. Fertility

Although fertility measurement is basic to understand the reproductive behaviour of a specific population, data on age-specific fertility rates (number of children born to women by age in a given year) are often missing due to the difficulties encountered in estimating these rates; the office of the Registrar General launched two important surveys in India (1972, 1979) in order to assess the levels and differentials in fertility at a state level. Unfortunately, the results have been found to be less satisfactory than expected. Inter-state comparisons are made difficult by differential accuracy of the data. A recent in-depth study (Bhat & al., 1984) tried to correct the estimates using various indirect methods. But the conclusions for TN are deceiving since the correction factor applied to the crude data in this state is obviously on the upper side; and the birth rates which result from this set of estimates are equally overstated (TN: 1971-72, 35.4 per 000's 1978-79: 32.2 per 000's). Therefore we will not present here these different results and shall restrict ourselves to a quick estimates derived firstly from the birth rates arrived at by the SRS. The total fertility rates are the sum of the different age-specific fertility rates: it is then the number of children born to a women who would experience the fertility conditions of the women of the different age-groups in a specific year. It provides the best single figure to assess the level of fertility without the disturbing effects age-distribution. To arrive at this estimate from the figure of the birth rate (TN; 1971-81), one must take into account the mean age distribution between 1971 and 1981 and a fertility schedule assumed to have remained constant over the period.([2]) For the decade 1961-1971, we reproduce the reliable estimates

1. Using a fertility schedule similar to that of TN in the 1970s' one can estimate the mean age at child-bearing to be 24.4 years for women now aged 35 years. This means that the births took place on an average 11.6 years before 1981, that is in 1970-71.
2. We make use of fertility rates from 1970 to 1975 (TN, SRS) to compute the fertility schedule which is then applied to the mean female age-distribution for 1971-1981.

obtained by the authors mentioned above.

The figures depicted on table 10 are of course in line with our birth rate estimates from which they themselves stem. TN and India as a whole experienced a somewhat similar fertility decline in the past 15 years. TN has now reached a level among the lowest in South Asia; inferior total fertility rates are found only in Sri Lanka and Kerala.([1])

TABLE 9

SRS Birth Rates 1969-72
(per thousand of population)

	1969	1970	1971	1972
Tamil Nadu	33.8	30.0	31.4	32.4
Kerala	31.1	31.6	31.1	31.2

(note the erratic trend of the birth rate in Tamil Nadu) (sources: SRS)

2.5 Nuptiality and Family Planning

We will rather limit ourselves here to a brief overview of the demographic factors which determine the current fertility; any attempt to scrutinize in depth the actual components of fertility is out of the scope of a short paper like this one.

Two American demographers recently developed an elaborate framework for analysing fertility, its changing pattern as well as its differentials.([2]) They were able to isolate different basic components-called "proximate variables"—after a statistical analysis of a large spectrum of data, especially from developing countries. Four main components are presented here, though the model is slightly more sophisticated :

1. Marriage schedule
2. Contraception use and abortion rate
3. Length of post partum ammenorhea (infecundability of women following a delivery; related to breast feeding)
4. Fecundity level (ability for women to reproduce in the absence of the first three factors).

The last two proximate variables will not be examined here, mainly because the required data are missing and unlikely to be reasonably estimated.

The first variable refers to the effect of a specific marriage pattern on the overall fertility. If we suppose that two populations have the same marital fertility rates, (fertility rates restricted to married women), any difference between the actual fertility levels will be due to differences in their marriage schedules. The women marrying on an average later are bound to bear less children than the other. This nuptiality component of fertility has been recognized for a long time by demographers. The most elementary index for it is the female mean age at marriage which is shown on *table 11*.

1. Note the southward gradient of low fertility.
2. Cf Bongaarts and Potter, 1983. Their model has been simplified in our analysis.

TABLE 10

Total Fertility Rates

	Tamil Nadu	India
1961-71	4.66*	5.72*
1971-81	3.82**	4.87***
Percentage Change	-18.1	-14.8

* Bhat & al ;
** Computed as mentioned in the text, assuming a birth rate of 30.5 (per 000's)
*** Mean of 1972 and 1979 fertility surveys
(Source : Bhat & al. (1984), fertility surveys)

TN and Kerala women marry later than the average Indian women as it is widely known. The increase in the age of at marriage has been faster in India than in the Southern states, indicating a greater homogeneciation of the nuptiality behaviours in the country. But differences between TN and India still remain substancial; however they cannot account for the whole difference of their fertility rates. In fact, if we are to follow the aggregate model of Bongaarts and Potter, the marriage factor represents around 50% of the fertility variation(1); it must be remembered that in the absence of modern contraception nuptiality used to be the first fertility-inhibiting factor, and that the mean age at marriage has always been very high in South India in comparison to the national average(2).

The Second variable of the model is the use of contraceptive methods including induced abortion. Family planning have been notably better in TN than in the country as a whole. Although the fiability of these data are often questionable, we show on *table 12* the proportion of protected couples as calculated by the Ministry of Health and Family Welfare in the middle of the 70s.

TABLE 11

Female Mean Age at Marriage 1961-1981

(Agarwala's synthetic cohort method)

	Tamil Nadu	Kerala	India
1961-71	19.56	20.76	17.12
1971-81	19.74	21.28	17.97

(Source: Goyal (1982), Census (1984b)

1 We used the data from the 1979 fertility survey for estimating the first proximate variable. The total fertility rates for India and TN are taken from Table 10.

2 cf Agarwala, 1962, and Goyal, 1982

The percentage of couples protected in the two southern states is significantly superior to the national figure. In terms of sterilization which is known as the most reliable method, the difference is of a least 5% due to the better performances of the Family Planning campaigns in Kerala an TN. But the 1970s have witnessed an acceleration of the Family Planning Programme, resulting in high peaks in certain states during the Emergency years (1976-1977) and a consequent set-back after it.[1] The latest figures available (as in March 1982) indicate a percentage of 27.7 for TN as against 23.7% for India.[2]

Coming back to our model, we find that the differential prevalence of contraception explains 29% of the difference of fertility between India and TN.[3] The remaining 20% of the variation are not explained by the first two proximate variables. The abortion rates (for which no data are available) are likely to play a significant role in this variation,[4] and the contribution of the other proximate variables account for the rest of the variation.

2.6 Some Fertility Differentials

Our measurement of fertility averages the reproductive behaviours of women belonging to different strata of the society, living in different settings all over TN. We do not possess any satisfactory estimates of the district differentials, but the fertility surveys give us the opportunity to notice significant variation among social categories. It must be kept in mind that the following data cannot be used but in relation to each other, since their accuracy is not always perfect. It has already been noticed that the birth rates are higher in rural areas than in urban areas (*see table 4*), which is confirmed by the following table :

TABLE 12

Percentage of couples effectively protected by methods 1976-77

	Tamil Nadu	Kerala	India
Sterilization	26.7	26.4	21.1
Intra-Uterine Device	1.1	2.1	1.5
Conventional contraceptives	1.6	1.8	1.8
Total	29.5	30.3	24.4

(Source: Srikantan 1983

1. See Srikantan, 1983, for more details
2. Data from the Ministry of Health and Family Planning cited in the Statistical Outline of India 1984
3. Details on the procedure are not given here, Refer to Bongaarts and Potter (1983) for a full description.
4. We have reasons to believe that abortion is more common in TN than in India, including in rural areas. See for example : K. Mahadevan, 1974.

Apart from their different social background (literacy ...), town-dwellers have a number of reasons to plan their family. Housing and education may be reasons for the better-off ; but for the poorer in an urban setting ; children are likely to become more a burden than an asset. In the country side, children are often laid under contribution very early since there are several tasks they can perform to help their parents ; moreover nurturing them is less costly than in urban areas. The social environment in the towns and cities do not encourage low-income families to bear numerous children for whom no bright future is seen on the horizon.(1)

The 1979 fertility survey depicts net variations among the different communities. Muslims and Harijans, for different reasons, exhibit higher fertility rates. Similarly, less educated people have more children, but the rather simple analytical framework of the survey do not permit any further analysis.(2)

2.7 Conclusion

Fertility has witnessed a regular decline in TN for the last twenty years. Right from the 50s, the birth rate seems to have been at a low level in the State, and at the time of the 1981 census, the SRS birth rate was as low as 27.8 (per 000's) compared to 33.9 (per 000's) for all India.(3) This peculiar situation has been explained by two demographic variables, viz. late nuptiality and high contraceptive prevalence, which are the actual causes of this phenomenon. The adult literacy rate as well as the level of urbanisation, both greater in TN than in the country as a while, may account for the differences. At a broader sociological scale, the status of women—as inferred from literacy, mortality and participation rates—has always been better in South India(4) and closely related to fertility. Further investigation at a district level would allow us to appraise also the impact of the changing population pressure on land where productivity has increased or stagnated ; the land-man ratio stimulated out-migrations in the past to check the general impoverishment, but it is not all clear whether changing agrarian structures may have also a direct effect on fertility. Similarly, the kinship system and the family structure as they function in TN may account for the changing reproductive behaviour of the population.

3. Mortality

3.1 Mortality Rates

It has been pointed out above that the birth rate is only an indirect index for the current fertility. Similarly the mortality rate (dependent on the age-structure and age mortality pattern) is not the most precise measurement of mortality but the measurement of this specific mortality structure

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1. See the cases of utter urban poverty and its consequence on family life as described by Kalpagam, 1983.
2. Interested readers may refer to three more detailed studies which investigate the determinants of fertility in two different parts of TN rural Coimbatore and Madurai districts in Mahadevan 1979 and W. H. O. 1976, and Madras City in Driver, 1981, See also Mukherjee, 1975.
3. The estimates for 1978 as provided in a recent paper of the Registrar General (Census 1983 a) have been discarded for being obviously exagerated in spite of the sophisticated statistical tools utilized.
4. For a more detailed analysis, see Dyson and Moore, 1983. See also part 3.4 of this paper.

in a given population. Mortality conditions are at best analysed with the life expectancy at birth (i. e. the average length of life of persons who would experience the age-specific death rates recorded in a given year) and detailed age-specific death rates such as the infant and child mortality rates.

We shall first look through the data provided in the sample registration and then compare them to other estimates draw from the demographic analysis of the successive age distributions of the census population.

The mortality rates in TN are slightly below the national figures. Urban areas are distinctly favoured owing to the relatively better sanitary conditions existing in the towns and the different social characteristics of urban population (principally education). Moreover the age structure of urban TN lowers also the death rates due to prominence of adult population (aged 15-45 years) with the lowest death rates.

The SRS provides also the series of age-specific death rates, which we will not scrutinize at length all the more as they are obviously affected by errors regarding the reported age at death.[1] But the death rates at younger ages deserve close examination for their share in the overall mortality is weighty and they have well-known consequences on fertility behaviour.

TABLE 13

Fertility Indicators 1971-73 & 1976-78

	Rural Tamil Nadu	Urban Tamil Nadu	Difference (in % of rural)
General Fert. Rate*	129.1 (per 000's)	106.3 (per 000's)	-17.7
Total Fert. Rate	4.1	3.2	-22.0

* births per woman aged 15-49 years
** sum of the age-specific fert. rates

(Source : SRS)

TABLE 14

Death Rates 1971-81
(per thousand of population)

	Tamil Nadu	India
Rural	15.6	16.1
Urban	9.0	9.3
Total	13.7	14 7

Soutce : SRS average

1. Age-specific mortality rates are given in the last two SRS publications (1983).

Rural/Urban differences are not depicted on *table 15* but as expected, the rural figures is sharply above the urban one e.g. infant mortality rates in TN, SRS 1976-78: rural, 118 (per 000's) urban, 74 (per 000's). According to these estimates TN has achieved a lower mortality rate at younger ages compared to the rest of India. Since the overall mortality rates of TN and India do not differ significantly, it may be assumed that if the all-India estimates for infant mortality is correct, its, death rate estimate is below the actual figure. But this mortality level remains very high in TN; from the child mortality rate it can be inferred that as many as 18% of the children born during the last decade have deceased before reaching the age of five years.(1) This reflects the unsecurity of survival prospects and partly explains the high fertility level of a population whose off spring is liable to severe mortality risks.

3.2 Census-Based Estimates

In view of the inaccuracy of the age structure, one cannot easily infer the mortality rates from the survival ratios (i e. the ratio of people from a specific age group in 1981 to those ten years younger in 1971) without using sophisticated corrective models. Therefore we will restrict ourselves to simple methods which yield reasonably good figures.

The "Difference method" is almost straight forward. First let us compute the difference between the people aged 10 years and more in 1981 and the total 1971 population. This death is taken as the number of deaths occuring between 1971 and 1981 among the population aged 5 years and more(2). By applying the proportion of these deaths among the total deaths (SRS 1976), we can compute the total figure of deaths during the decade and consequently the average death rate. The death rate thus obtained is 14.7 (per 000's) for the intercensal period, which fairly matches with our precedent estimates, keeping in view the obvious defects of the method (age-misstatement, migration left out....

Comparison of the different estimates of the death rates in TN, Kerala and India is less easy since certain figures are clearly unsatisfactory. As a result figures depicted on *table 16* should be considered illustrative.

TABLE 15

Infant and child mortalify rates in the 1970s
(per thousand)

	Tamil Nadu	India
Infant Mortality Rate		
SRS 72, 73-74, 76-77-78	110.0	131.5
Child Mortality Rate SRS 76-78	43.0	50.1

Source : SRS

1. This figure is obtained from the child mortality rate by using a model life table (South Asian pattern, U.N. 1982).
2. Actually it is somewhat less than 5 years and therefore our estimate will be on the upper side.

TABLE 16

Death Rates 1961-1981

(per thousand of population)

	Tamil Nadu	Kerala	India
1961-71			
Bhat & al. : projection method	16.4	10.3	18.7
1971-81			
SRS Average	13.7	7.7	14.7
Difference method	14.7	*	14.85**
Inferred from migrations and birth rates (Bhat & al)	13.6	9.8	13.3

* not reliable

** as computed by the Reg. Gen.

Source : Bhat & al (1984), Census (1984a), SRS

The mortality decline begun probably very early in Kerala (at the turning of the century?) and since then the State has always witnessed better mortality conditions than the rest of the country. In the case of TN, the estimates for the death rate in 1971-81 are not as clearly below the national average as they were in 1961-71; since mortality in TN is unlikely to be higher than in India as a whole, one should expect the death rate to be lower due to its lesser proportion of children (which are subject to high mortality risks). Accordingly, 13 7 (Per 000's) can be considered a reasonable estimate and it follows that the SRS figures of infant and child mortality rates cited above are perhaps understated.

3.3 Life Expectancy

Life expectancy at birth as mentioned earlier is the best single indicator of mortality conditions prevailing in a population during a specific period, since it is not dependent on the age-structure unlike the death rate. But on the other hand estimates for it are far less readily available when there is no good civil registration system[1] and age misreporting in the census prevents us to compute the inter censal survival ratios.

In order to give an idea of the life expectancy, we will utilise various estimates from certain reliable demographic studies. As there is no such estimate for TN in 1971-81, we have to use a specific

1. SRS age - specific death rates are also unreliable at a state level as it was shown by Bhat & al. (1984)

procedure to inter life expectancy from our death rate estimate : we apply the age-specific death rates of two different "model life tables" (statistical model reflecting the South Asian mortality pattern) to the mean age-distribution of the TN population during 1971-81 ([1]) and then we compare the two overall death rates obtained by this method with the death rate of TN (assumed to be 13.7 (per 000's) in 1971-1981). Thus we come to the conclusion that the life expectancy (for both sexes) lies around 52 years; the same figure calculated by the Registrar General following alternative procedures put the life expectancy for India at birth at a similar level ([2]).

In 1961-71, the life expectancy as calculated from the consecutive censuses (Bhat & al, 1984) was 47.6 years for males and 46.5 years for females. The improvement of almost 5 years is noteworthy and mainly results from the decline of the infant and child mortality rates. But the figure for 1971-81 still remains bad when compared to life expectancy in other asian countries (Sri Lanka, Thailand...).

Contrary to the popular belief, people are not equal in front of death. Owing to the differential access to health, sizeable differences in the death rate have been reported for the different sections of the Tamil population. Urban residents enjoy better conditions which are attributed to the greater availability of medical cares as well as better sanitary conditions of the towns (drainage facilities...); for example, the sample surveys (1979 survey, SRS 1976-78...) show great variations in the types of attention at birth or at death (medical institutions or not) between rural and urban areas. Moreover some low-status and low-income groups are clearly more vulnerable to the infectious diseases([3]). Typhus, Tetanus and dysentery are the major killers at younger ages whereas TB attacks the adult population. There is still a long way to "health for all by year 2000".

3.4. Sex differentials in mortality and Sex ratio

We would like to stress a particular feature of sex ratio (females per 1000 males) in India it has been noticed for decades that its level was extremely low in a number of regions in India and furthermore has been deteriorating over the years whereas international migration cannot account for this downward trend. It is now clearly established that female excess mortality is responsible for this unbalanced sex proportion. Moreover striking differences are noticed among the various states ([4]), particularly between the North-West region and the Far South.

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1. We have selected model life tables with life expectancy of 50 years and 55 years (South Asian pattern; see United Nations, 1982). With Px (t) as the population aged X- years in the year t, the mean population between 1971 and 1981 is

$$(Px(1981)—Px(1971)/Ln \left(\frac{Px(1981)}{Px(1971)}\right)$$

2. Between 50.9 and 55.5 for males and between 50.0 and 52.9 for females, See Census 1981 Paper 1 of 1984.
3. See for example W.H.O., 1976. on rural Coimbatore and Madurai districts.
4. For a general assessment, see Mitra, 1978, and Dyson & Moore, 1983. The sociological approach of this issue provided by B. D. Miller (1981) is unfortunately often more emotional than scientific.

At a State level, I have shown elsewhere that district-to-district differences can easily be explained by differential migrations (Guilmoto, 1984), but in the case of variations in sex ratio between different states, the respective contributions of migrations and sex differentials in mortality are difficult to sort out, since heavy in-migrations (of males) could be responsible as well for the sex imbalance. Here I Suggest to examine figures which eliminates the disturbing effect of migrations: the sex ratio of the different linguistic groups for the whole country gives a picture that is free of the distortions due to internal migrations.(1)

Table 17 indicates beyond doubt that the sharp inter-state variations persist when the data used refered to the linguistic groups comprising out migrants beyond the limits of the original state; thus we can safely conclude that state-to-state variations in sex ratio are due mainly to variations in sex differentials in mortality between the different cultural groups and only marginally to migration (see the case of outmigrating Keralites). The hypotheses recently put forward by demographers(2) seem extremely plausible: one perceives a strong north-south opposition which is to be related to the position of Indian women in different socio-cultural environment (participation to labour force, age at marriage, kinship system, lireracy rates......). Further data on TN(3) show similarly that Tamil women enjoy better conditions than their northern counterparts. But this remark in no way can make us play down the high mortality risks which both sexes face in the state of TN. In fact the most striking feature of the mortality trends-as shown on table 16 is that the Tamil death lies now very close to that of the whole country, whereas there used to be a significant margin of difference in favour of Tamil Nadu before the 1970s. That this high mortality level in TN is responsible for

TABLE 17

Sex Ratio by Mother Tongue and Staff 1971
(females per thousand males)

Mother Tongue	Sex Ratio		State
Malayalam	996	1016	Kerala
Tamil	976	978	Tamil Nadu
Hindi	895	914	Bihar, M. Pradesh Rajasthan & U.P.
Panjabi	861	865	Punjab
Kashmiri	866	878	Jammu & Kashmir

Source: computed from the 1971 census.

1. International migrations are however not taken into account but can be held negligible.
2. For more details, refer to Dyson & Crooke, 1983.
3. See for example the SRS infant mortality rates by sex or the data collected in Haryana and TN which are presented in Kaur, 1978.

the slow pace of growth is hardly a satisfactory finding.

4. Migration and Population Redistribution

4.1 Volume of Migration

Migration statistics have never been good in India and it is thought that people often fail to report correctly their place of birth. Some data based on the 5% sample for 1981 are already available and permit us to draw some conclusions on the migratory flows between 1971 and 1981; these are the place-of-birth migration data which are shown on table 18 along with older data.

The volume of the net 1971-81 migrations is rather small and does not account for more than 1.2% of the intercensal growth. It can be noted that women are slightly more numerous among immigrants (marriage migrations) than men, unlike the case of out-migrants (mostly job migrations). Furthermore, the decline in the number of net migrants between 1961-71 and 1971-1981 is noteworthy and is firstly due to the arrival of a large number of foreign-born Tamils as will be shown further below.

4.2 International Migrations

First let us have a look at the following tables which pertain to the international migrations from foreign countries to TN. During the last decade the Tamil State has experienced a big influx of people returning from Sri Lanka. It must be remembered that a big share of the Tamil population of the island is of "recent" Indian origin. Tamils gradually arrived in Ceylon from 1850 through the 1940s; most of them came under the Kangani system to work on the estates (coffee first and then tea and rubber estates) and have always been in a precarious state in independent Ceylon (Sri Lanka) as they were denied the Ceylonese citizenship and enumerated as "foreigners" in the censuses. After the "Sirimavo-Shastri Pact" in 1964[1], it was decided then more than 60% of the Stateless Tamils would be granted the Indian citizenship and repatriated to India

TABLE 18

Migrations in Tamil Nadu 1961-81
(in 000s)

	Out-Migrants*		In-Migrants**		Net Migrants	Net Migrants***
	1971	1981	1971	1981	1971-81	1961-71
Males	566.1	711.0	475.8	557.3	-72.1	-65.0
Females	517.3	698.3	480.7	654.6	-10.6	-46.1
Persons	1083.4	1409.3	956.5	1211.9	-82.7	-109.0

* Persons born in Tamil Nadu but enumerated elsewhere in India
** Persons enumerated in Tamil Nadu but born elsewhere
*** Place-of-last residence data

Source: Census (1983c), Premi (1982)

1. See the contributions by S. R. Sudhamani, A.Muni and V.Suriyanarayanan in Bahadur Singh, 1984.

when the rest of the "Indian Tamils" was to aquire the Srilankan citizenship ; the agreement started to be implemented in 1967 and repatriates flowed to South India. As the Census of India and other sources clearly indicate, they were mainly obsorbed by their original state, viz. Tamil Nadu (95% of the repatriates).

But again the census data as depicted on the foregoing tables 19 and 20 cannot be taken on their face value. Migration data suffer from different shortcomings even for very recent migrants. Let us consider two other estimates from different sources :

1. Recent studies on this issue, drawing from official sources, put the figures of *returns* to a high 328.4 thousands between 1971 and 1981 (1).

2. The last two census of Sri Lanka (1971, 1981) *report a dramatic fall of* the Indian Tamils in the island's *population. Even allowing for the* slower growth rate of this population, *(low fertility and high mortality have* been noticed among the Indian Tamils of Sri Lanka) and the *probable redistri*bution of Indian Tamils in the category of Sri Lanka (Jaffna) Tamils, one obtains a decrease of 320.0

TABLE 19

Foreign-Born population in Tamil Nadu 1971-81
(in 000s)

1971	1981	Net Migrant*
157.4	303.8	161.6

* figures arrived at by applying a survival ratio to the 1971 migrants classified by sex.

Source : Census (1983c)

TABLE 20

Last residence outside India, India 1981
(in 000s)

Place of last residence	In India since less than 10 years
Burma	26.0
Sri Lanka	157.8
Singapore & Malaysia	11.7
Total	195.5

Source : Census (1984b)

1. Bahadur Singh, 1984. See also Bodge and Wiebe, 1980, unavailable data for 1980 have been estimeted by linear projections.

thousands of Indian Tamils between 1971 and 1981 (1).

Although it is difficult for us to appraise the quality of these different sources, it seems reasonable to assume that the actual figure lies somewhere around 3 lakhs of immigrants from Sri Lanka. As to the other countries with substantial Tamil population (Burma, Malaysia, Singapore), it can be observed that the return stream is about to come to an end.

4.3 Inter-State Migrations

Inter-State migrations strictly speaking (i. e. within India herself) and estimated by substracting the international migrations (as recorded by the Census of India) from the figure of the total migrations.

Compared with the 1961-71 figures displayed on *table 18*, the level of out-migration from TN seems to have increased during the last decade, but was partly offset by the returning Tamils from Sri Lanka. Since the data are not yet cross-classified by place of birth and place of enumeration, one can just guess that the *spatial pattern of migration has been* similar from one decade to the other: out-migration of Tamils to Karnataka and Maharastra and in-migration of Keralites to TN.

We have at our disposal certain data regarding the migrants whose last residence was in Tamil Nadu; as the

TABLE 21

Net Inter-State Migrations, Tamil Nadu 1971-81

(in 000s)

Males	— 152.7
Females	— 91.7
Total	— 244.3

TABLE 22

Tamil Out-Migrants 1981

(in percentage)

	Last Res. In T. N. Rural	Last Res. In T. N. Urban	Current Res. outside in T. N. Rural	Current Res. outside in T. N. Urban	Total (000s)
Males	45.9	54.1	34.6	65.4	665.4
Females	48.7	51.3	40.0	60.0	652.7
Persons	47.3	52.7	37.3	62.7	1318.1

Source: computed from the census (1984b)

1. To arrive at this estimate, we have utilised the natural increase of Indian Tamils in Sri Lanka (from civil registration data). *The unusual growth of the Sri Lankan Tamils as well as their geographical* distribution indicate that some Indian Tamils have been enumerated in 1981 as Sri Lanka Tamils The whole procedure for our estimation will be described in an other paper.

complementary data (people enumerated in TN whose last residence was elsewhere in India) are missing, we cannot estimate the migrations by this alternative method. None the less it is possible to outline the statistical profile of the out-migrating Tamils.

Table 22 shows that migrations outside TN are above all an urban phenomenon: 52.7% of the emigrants come from urban areas as against 37.2% for all Indian emigrants. On the other side, the direction of out-migration is urban in 62.7% of the cases (all India : 53.7%). A few migrants only leave the rural areas and still less settle down in rural areas of other states. The urban aspect of migration is as expected a little lower for females probably because of the importance of marriage migrations between villages(1)

when we compare these figures with the all-India figures, we notice that migrations from rural areas are far less important in TN that in the rest of the country. This feature can be explained by two different factors :

— increasing mobility of Tamil city-and town-dwellers across the State boundaries which contributed to the slow-down of urbanization in TN(2)

— relatively low "permeability" of the Tamil rural society in comparison with the less rigid frontiers of the Hindi Belt.

some further tabulations from the 5% sample are summarized in the next three tables. They yield complementary informations on the out-migrants : the duration of their stay outside TN and the reason for their move.

From *table 23* it is seen that migrations can be divided into 2 different categories. On the one hand, we have long-duration migration (more than 5 years) : people have found a new place to live in. Either as adults working there or as members of the family (children, spouse ...), they will spend a decisive time outside TN and are less likely than others to come back to TN(3). The share of women among these out-migrants is slightly higher than that of men since it comprises also women born in TN but married to people residing outside the State. On the other hand, we have the "people on the move, who have left recently TN. Note that their proportion is relatively higher for shorter periods (e.g. 0—4 years : 35.4% as against 5—9 years : 15.9% among men). These are mainly the Tamils who went outside TN in search for better job opportunities, as well as their family (wife and children). Less than half of them will settle down for good where they presently reside ; the other may go back to TN or to some other Indian states.

Tables 24 and 25 being more detailed and it is the first time that the census reports the causes for migration. The reasons put forward very widely with the sex of the migrants. Two reasons common for both sexes are "education" and "family move". The latter—more frequently given by women-includes migration with the parents (for children of both

1. The pattern of marriages in South India however makes marriage migrations less frequent and shorter with respect to distance than in North India.
2. The economic factors behind the slackening of urbanization in TN will not be discussed here. See Bose, 1982.
3. This also includes the non-Tamils who come back after a stay in TN.

TABLE 23

Duration of Stay outside Tamil Nadu 1981
(percentage)

	Less than 1 Year	1-4 Years	5-9 Years	10 Years & more	Total (000s)
Male	8.6	26.8	15.9	45.2	665.4
Females	6.1	24.8	16.6	49.2	652.7

Source: some as Table 22

TABLE 24

Reason for Migrating outside Tamil Nadu 1981
(percentage)

	Employment	Education	Family	Move Marriage	Others	Total (000s)
Males	48.8	2.0	26.6	2.1	19.8	665.4
Females	7.6	2.1	35.8	41.0	13.5	652.7

Source: same as Table 22

TABLE 25

Reason for Migrating to Urban Areas Outside Tamil Nadu 1981

	Employment	Education	Family	Move Marriage	Others	Total (000s)
Males	52.9	3.4	23.7	1.3	18.6	435.1
Females	6.1	2.8	39.3	37.0	14.8	391.5

Source: same as Table 22

sexes) as well as migration with the spouse (presumably for wives) ; hence the greater proportion of women. The other two reasons for migrating make the whole difference, between male and female migrants. As many as 41% of the women whose last residence was in TN have migrated at the occasion of their marriage. Reversely almost half of the men have left to find a new employment outside TN. We can infer from this that a lot of men must have gone alone for if we substract say half of the women having migrated at the time of their marriage (women who married non-migrants) from the total number of migrating women, we then realize that men outnumber women by about 25%, which shows that many male out-migrants do not live with their wives (if any).

Table 25 has been displayed in order to give further particulars on the specific pattern of urban ward migrations. It reveals that reasons for migrating do not differ considerably according to the destination of the migrants although "employment" (for men) and "family move" (for women) are slightly more often mentioned and "marriage" less often ; it appears that in the case of migrations to urban areas economic reasons prevail over other reasons, which in itself is no unexpected finding([1]).

4.4 Internal Redistribution

No data on internal migration (from one district to another . . .) have been yet released. In view of the contrasting growth rates among the districts of TN (from 11.2% for Tirunelveli to a high 29.1% for Chengalpattu in 1971-81), the migration is likely to have played an important role, more over as the district-to-district variations of the vital rate([2])

TABLE 26

Urban and Rural populations in Tamil Nadu 1971-81

	1971 Population	SRS Annual Net increase (per 000's)	1971 Population projected	1981 popul-tion correc-ted for new towns	Diffe-rence*
	(1)	(2)	(3) = (1)xe (2) x 10	(4)	(5) = (4) —(3)
Urban	12471.0	17.11	14798.2	15965.0	+1166.8
Rural	28728.2	15.96	33699.4	32443.1	—1256.3

* Absolute value of the differences are not similar due to the inter-State migrations.

Source: Computed from Census (1983b) and Table 1

1 Other comparisons—with more detailed tabulations—have been attempted (reason according to the place of origin, the duration of stay etc . . .), but no specific finding is worth mentioning here.

2. Since the civil registration data are hopelessly unreliable, no reliable evaluation is available. The Attempt by S. Mukerji to estimate vital rates at a district level has been omitted here due to the lack of consistency from one decade to another.

cannot reasonably account for more than 6-7% in 1971-81([1]).

Data on rural-to-urban migrations are also missing for TN, but an indirect method of estimation can be used : we project the rural (urban) population in 1971 according to its SRS—estimated natural increase and then compare the resulting figure with the rural (urban) population in 1981. The obtained difference stands for the rural-urban migrations. However due to the changing status of certain places from 1971 and 1981 (rural areas made urban areas), we shall adopt the longitudinal (continuous) view point([2]). Thence we deduct from the 1981 urban total the population of the new urban areas (293.0 thousands; computed from census of India, 1981).

The last column of *Table 26* indicates the volume and direction of migration between urban and rural areas. It is seen that the actual number of people involved in this net rural-to-urban migration is impressive; however, the pace of urbanization in TN has considerably reduced during the last decade like in the case of other more urbanized states (Maharastra, Gujarat). The first reason of this slowing-down is likely to be economic (lesser industrial development in the cities...) though only further investigation will shed light on its main determinants. As was indicated above, heavy migrations occurred from Tamil towns to other Indian States, which denotes a relative congestion of urban places in TN. Similarly the last table shown indicates that urban gains were less than rural losses by more than 2 lakhs of population. This can be again explained by the somewhat saturate condition of urban zones([3]) and the out-migration from TN which may have resulted.

5. General Assessment

In spite of the numerous limitations of any attempt to give the exact picture of the demographic trends in TN, we have gathered so far enough informations to produce a reliable set of estimates for the last 20 years. The results and summarized on *Table 27*

TN registered parallel declines of fertility and mortality the former being undeniably quicker because of the starting of the national campaigns of family planning The urban population which enjoyed already a relatively low mortality rate has opted more rapidly for family limitation. But the dissemination of family planning centres in rural areas bore fruits as well. The success of the health policy looks somewhat less convincing even when a low estimate for the death rate is made use of (see the other estimates indicated in Section 3). It must be remembered that the downward trend of the death rate is perceptible since the 1920s after the last major epidemics. Plauge, cholra and

1. A very simple method to estimate roughly the migrations consists in deducting TN's natural increase from the decadal growth observed in the district (that is assuming that natural increase has been the same in every district). It then appears that heavy in-migrations took place in highly urbanized district like Madras and Chengalpattu and in the Nilgiris (repatriates from Sri Lanka).

2. See Nagaraj and Majumdar, 1982.

3. The growth rates decreased for towns of all size except class II towns (50,000—100,000). Cf Nagaraj and Majumdar, 1982.

TABLE 27

Vital Rates in Tamil Nadu 1961-71
(per thousand of population)

	Birth rate	Death rate	NAT	Net Migrants (000s)
1961-71	36.8	16.4	20.4	- 109.0
1971-81	30.2	13.7	16.5	- 82.7

Source ; See tables above

smallpox have been successively brought under control. After World War II malaria was eliminated from most Indian states though there remain areas where mosquites are still a menace (inefficiency of traditional insecticites, inaccessible hilly tracts). We are now in a period when improvements are slower for they require costlier investments (e.g. water sanitation). Combined with a low birth rate the still high mortality rate is responsible for the moderate pace of growth of TN but futher sanitary improvements will endanger this trend unless there is a parallel decline in fertility. Looking back in the past when migrations abroad could check the pressure on land, it seems that the population had already adopted a "malthusian behaviour" in order to curb the demographic growth.

The evolution of the demography of TN could be simulated with a set of projections according to different hypotheses (pace of fertility decline etc...). But we have rather chosen here to compare the present growth with a growth of a hypothetic population having had similar demographic characteristics over a long period. Therefore the results presented below are on no account forecasts for the future but, on the contrary, a more detailed analysis of today's trends(1).

The first two ratios are derived from the total fertility rates; the net reproduction rate is a very simple indicator of the capacity for a population to reproduce, from a generation of mothers to their dauthter's. But it is a very rapidly changing index in a context of demographic transition and thus it cannot be taken as indicative of the future trends.

The other estimates. are products of a simulation; if we suppose unchanging fertility and mortality in TN over a long span, its population will come a "stable" state, with constant vital rates. It is seen that the implied growth rate ("intrinsic growth rate") is clearly lower than that recorded during 1971-81. This is due to the specific age-structure of present-day TN which is younger than the "stable" population's and consequently yield a higher birth rate and a lower death rate compared to the stable rates. This simulation pinpoints a very important aspect of population dynamics the effects of inherited age structure and growth momentum. It may well be that a given

1. Computation procedure is described in Appendix I.

TABLE 28

Population of Tamil Nadu 1971-81 : A Model

Gross Reproduction Rate	1.85
(number of daughters born per woman) Net Reproduction Rate	1.33
(number of daughter surviving up to age 28 per woman) Intensic Growth Rate	10.2 per 000's
(growth of a stable population with similar N.R) Stable Vital Rates Birth Rate	27.5 per 000's
(female population) Death Rate	17.5 per 000's
(Stable population with a growth rate of 10 per 000's and a life expectancy at birth of 50 years)	

Source : see Appendix 1

population keeps on growing for years even with a net reproduction rate of 1.00 (stationary state) due to its specific age-distribution[1]. In the case of TN, the current growth rate is greater than the intrinsic growth rate owing to the fertility and mortality levels which obtained in the past. Even in the context of a rapidly altering age-structure, the effects of previous trends are still felt today, and a more stable growth would be attained only after a long period of stabilization. Present demographic situation in TN results from the trends of the last 40 years, when the region was facing completely different socio-economic conditions.

Similarly, recent trends are indicative of the future composition of the population since for example the overall majority of the working force of the early 2000s is already born; demographic policies have only long-term effects except on the population redistribution. The heavy urban concentration stems from the unequal economic development in the state which led to an important influx of people from backward rural areas to the pockets of economic growth. Therefore we must stress that our analysis applies quite differently to the various districts, from Tanjavur to Madras city. And the demographic factor is nothing but one of the components of the development as illustrated by the case of Kerala where the demographic transition has not so far checked the mass-scale out—migrations induced by the state's poverty. But TN enjoys far better economic as well as ecological conditions which may allow it to accomodate its future population provided the latter grows at a reasonable pace.

1. Some Western countries have already faced similar situations.

APPENDIX 1

— We have selected the following estimates to construct our method.

— Total fertility rates : 3.82 (SRS 72-79, Tamil Nadu)

— Sex ratio at birth : 940 females per 1000 males

— Female life expectancy : 50 years

— Mean age at child-bearing : 28 years (Computed from SRS 70-75; Tamil Nadu)

The gross reproduction rate is calculated by applying the sex ratio at birth to the total fertility rates. The net reproduction rate (NRR) is the previous rate multiplied by the survival ratio from birth to the mean age at child bearing (South Asian mortality pattern, U. N. life tables)

The intrinsic growth rate (r) is computed with the simple formula : NRR = 28

The stable vital rates come from the model stable populations (Coale & Demeny, 1966), Model West, r = 1%, life expectancy = 50 years.

APPENDIX II

Basic demographic data—Tamilnadu and India 1981 census data

	UNIT	TAMIL NADU	INDIA*
Total Population	000s	48,408	685,185
Growth Rate 1971-81	%	17.5	25.0
Sex Ratio	Female per 1000 males	977	933
Density	people per km²	372	216
Rural Population	% of the total	67.0	76.7
Urban Population	% of the total	33.0	23.3
Out-Migrants	000s	1409.3	—
In-Migrants	000s	1211.9	—
In-Migrants Born Abroad			
1971	000s	157.4	8121.3
1981	000s	363.8	7938.4
Mean Age at Marriage**			
Males	—	25.3	22.4
Females	—	19.7	18.0
Females Married in the age group 15-19	%	22.8	43.5
Number of Live Births to Women aged 45-49 years	—	4.18	4.99
Population aged less than 10 years	%	23.1	26.7
Dependency Ratio	%	70.6	85.4
Child-Woman Ratio	%	43.5	54.6
Literacy Level (5 years and more)			
Males	%	65.6	53.5
Females	%	39.4	28.5

* Population of Assam has been either estimated or omitted.

** Agarwala's Method.

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Summary of Discussion

The purpose of the paper, as the author claims, is to sum up all the different informations on the population growth in Tamil Nadu. This is attempted with the help of 27 tables and one chart based on data census, series of demographic sample data and series of civil registration data. Wherever data is not available approximations are made with the help of 'mathematical modeling'. Inspite of major data problems, which the author himself admits, he makes the following conclusion from the study.

1. The birth rates in TN has been low for atleast past 20 years
2. The fertility decline has started even before the beginning of the massive family planning campaign
3. The mortality rates in TN are slightly below the national average
4. The life expectancy in TN is 52 years (his own estimates).

The author concluded by saying that the economic and ecological condition in TN can contain a population if it grows at the present moderate rate.

Presentation of the paper was followed by discussions mainly on data problems. Participants raised their doubts about the reliability and comparability of the various data sources which the author used for his analysis. It was pointed out that 1961 census data may be an underestimate. A suggestion was made to use the NSS data, despite its defects.

The participants shared the view that there are difficulties in getting reliable data on number of births, no. of deaths, no. of children, migration etc. The author said that the Sample Registration Scheme (SRS) data seems to be more reliable in the case of Tamil Nadu than elsewhere.

Doubts were raised about the growth rates arrived at by the author. It was felt that adequate emphasis was not given to the aspect of migration, especially male migration, from Kerala, in his comparison.

Another interesting issue was raised by the chairperson. It is seen that the use of contraceptives is the same in Kerala and Tamil Nadu. But Kerala experienced a sharp fertility decline than Tamil Nadu He pointed out that the causes for this are worth probing.

One participant reminds the author for a need to conduct a much more disaggregated level study, especially among the lower income groups in TN. This can alone reveal misteries of Population dynamics in Tamil Nadu.

The Seminar was chaired by Dr. K. Nagaraj.

K. T. Thomson

Planning and Implementation at the district level*

The Approach

The theme paper outlines in a somewhat exhaustive fashion the political and economic issues involved in decentralised planning and plan implementation. One danger that the analyses set fourth in the paper faces is that the issues raised are so many, the solutions to be worked out so varied and complex, and their coordination and synthesis so difficult and daunting, that we could spend all of the Seventh Plan just debating the many issues raised. The approach in this note is to make a start next year, within the existing political and economic framework, on planning and plan implementation, of some very obviously local based, location specific programmes at the district level starting in April 1985, or at the latest in April 1986. The obvious objection to this suggestion is that this is a piecemeal approach which will founder on its lack of relevance to national and State goals and objectives on the one hand, and that it ignores the inherent inter connectedness of the relationship in space and substantive sectors on which any system of multi level planning is based. It should be admitted that these are real limitations to the approach suggested here, and hence the few programmes chosen for local level planning and implementation are, on the one hand, within the core of national and state plan objectives, and are relatively autonomous at their execution phase, on the other.

Prior work

On the limited approach to local level planning suggested in this note, some useful ground work has been done, the most recent being the report of the (Ashok Mehta) Committee on panchayat Raj Institutions in 1978 In fact the preamble in the government resolution setting up that committee states that 'the government considers the maximum degree of decentralisation both in planning and implementation is necessary' and in its terms of reference requires the committee to give consideration to 'the planning and implementation of schemes for rural development in an objective and optimal manner'—almost the same language as used in the invitation letter and the theme paper for this seminar which has brought us together[1]

* A note for the Seminar on Decentralised Planning by Dr. Malcolm S. Adiseshiah held at Bangalore on November 29, 30 and December 1, 1984.

The Ashok Mehta Committee draws on the valuable prior work on decentralised planning done by the Balwant Ray Mehta study team of 1957[2], the expert working group on block level planning 1977, the Dantwalla working group of 1977[3], in identifying the programmes susceptible of local level planning and execution. On this basis, it is possible to set forth a certain number of suggestions and proposals.

Spatial

To start with, the planning and implementation of certain programmes should be made the responsibility of the district and blocks within the district. The district will be the level for certain activities such as coverage of different agro climatic areas within a district which may cut across blocks, for the strategy to be pursued, for certain of the infrastructures such as the planning of roads, minor irrigation works etc. whose implementation will be its responsibility. The block, on the other hand, is the level —the grass roots levels, at which certain plans and programmes will be formulated and implemented, along with the others referred to above which are planned at the district level. Thus the planning and implementation at the district and block level is a single spatial frame, with the block's activities flowing into the district as will that of the district into the block.

Subject Area

Again to start with, the subject areas for planning and implementation at the district and block level are all the programmes aimed at alleviating poverty. They are the subject areas set forth in the minimum needs programme, which are also the items of the revised 20 points programme-namely increase of irrigation (minor), increase of IRDP and NREP, drinking water, house sites for the houseless, social and farm forestry, biogas development, primary health care and family planning, women and children welfare, primary education, adult literacy and rural roads. In addition the implementation of agricultural land ceilings, distribution of surplus land, complete compilation of land records and the enforcing of minimum wages for agricultural labour (points 4 and 5) of the revised 20 points programme are areas where the execution responsibility should vest with the block and district level bodies. This importance of this subject area is forcefully set forth in the Approach Paper to the VII Plan in the following words : 'the core of the anti-poverty programme lies in the endowment of income generating assets on those who have little or none of these. Hence redistributive land reforms and security of tenure to the informal tenants have to be directly integrated with the anti poverty package of programmes'.[4] Now our task is to operationalise this clear directive.

Linkages

As noted earlier the block level is the level at which the district Plan for the most part is executed. Agriculture and allied activities - farming, forestry, fisheries, animal husbandry as well as rural arts and crafts, along with IRDP and NREP should be both planned and executed at the block level. The district level plan should bring together and coordinate these specific block level plans, just as the State Plan is a function of the District Plan.

Expertise

As recommended by the Ashok Mehta Committee, for the development of District

Plans, there is need for a planning cell to be located in each district functioning under the District Development Committee and its Commissioner. The District Planning team should consist of

— an economist/statistician

— a cartographer/geographer

— an agronomist

— an engineer (irrigation/civil)

— a small industries specialist and
— a credit planning officer

} These two specialists could be provided by the DIC and the lead banks of the district.

Such a team will work along side of the District Agricultural Officer, the District Industries Centre, the District health officer, the District (school) education and (Adult) education officers in elaborating the District Plan, and rely on them and their counter parts at the block for implementation.

Community participation

The participation of the members of the local community in the planning and execution of district and block programme will require (a) that the plans and their monitoring should be supervised by elected bodies which exist both at the district and block levels. Against such local body approval and supervision is the oft repeated fear that corruption and factionalism at this level is strong, and even more serious that such local leadership comes from the large landed and other well to do classes, who will use local plans and programmes to serve their interests. This distrust of locally elected bodies is not a theoretical problem as I found when helping the district planning cells to develop district Plans, but which I was asked by the State authorities not, to submit to the locally elected bodies for approval. There is truth in this fear and so a counter to it is the second form of community participation, which is (b) that the poor majority in the district and block should be helped to organise themselves as first proposed in the Draft Plan 1978-83 and repeated in the Approach Paper to VII Plan, in order to ensure that the district and block plans respond to their needs and interests and are executed in accordance with the objectives and purpose of the programmes. Additionally the organised poor can through the election process replace the power net works referred to earlier, with their own representatives. One reason for the report of the Union ministry of rural development that (a) the benefits of the IRDP are accruing to the non poor (leave alone its original purpose of benefiting the poorest of the poor), or (b) the declining trend in NREP which created 413 million mandays of employment in 1980-81, 345 million mandays in 1981-82, 340 million mandays in 1982-83 and 300 million in 1983-84, leading to an accumulated undistributed allocated amount of Rs 400 crores for the 3 years, or (c) the distribution of a meagre of 0.30 lakh acres of surplus land in 1982-83 to the landless, inspite, of its being point 4 of the revised 20 point programme, for which Rs. 30 crores was allocated and not even Rs. 3 crores disbursed[6], - the reason for all this is that while the strategies and priorities are decided at the Union level with the agreement of the states in the National Development Council, which is the right thing to do, the programmes are planned to a set format also decided at the Union level, (one example of this is the ministry report

that the poor overworked BDO fills in the standard IRDP form with the name of the family and against the column in which the income earning asset to be provided is to be specified invariably enters 'buffalo', even when the family has no means of caring for and feeding any cattle) and the execution entrusted to the State governments which is also far away from the district and block. Some studies show that as a result no more than the 10 per cent of the IRDP allocation reaches the beneficiary.[6] The correction to this situation is for the planning of these poverty alleviation programmes to be entrusted to the block level bodies assisted by the district planning team, and backed up by the organisation of the poor who will ensure that IRDP and NREP are planned in relation to their real needs and are administered so that the benefits really reach them.

Finances

For such district and block level plans the Union government/Planning Commission should be responsible for financing the district planning team for every district at least for the VII Plan. The State government in its turn will have to divide the State Plan resources into two parts: one will be to finance its overall Plans covering the entire state, such as the medium industry, major and medium irrigation, coastal fisheries, finances for urban centres and urban slums, state high ways and transportation, higher education, hospitals and development of backward classes, all of which could involve 30 to 40 per cent of the Annual Plan finance; and a second part comprising the rest of the annual Plan which will have to be distributed to the districts on the model of the modified Gadgil formula used by the Union Planning Commission —which will be based on the population of the district, the extent of its backward areas, and the degree of under employment and poverty that it faces. Each State will have to device such a districts financing formula as part of the programme for local planning and execution. The districts in turn will have to allocate funds to its blocks for programmes which are to be planned by the blocks.

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SPECIAL SECTION

A Selection of Papers presented at the
Fourteenth Interdisciplinary Research Methodology Workshop
ICSA, Madras, 1984

on

Urban Problems

Urbanization and Educational Growth
Some Reflections on the Indian Experience

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That there is a high correlation between urbanization defined as the proportion of people living in urban as against rural areas—and education is by now a sociological axiom. Measuring the relation between urbanization and economic development, Leo Schnore has reported a worldwide rank—order correlation between urbanization and literacy of 0.73 for the period 1955-59.[1] In their Editors' Introduction to *Education* in Cities, Lauwerys and Scanlon[2] refer to 'the effects of urbanization on education at all levels'.

The implications of the correlation between urbanization and education apart, the educational scene throughout the capitalist world, as also in most of the Third World countries, is confronted by a crisis. And, nowhere are the underlying social contradictions of such a crisis more visible than in the urban centres of these countries.[3]

Surprisingly enough neither sociologists nor educationists have paid much attention to the nature and implications of the urbanization—education nexus. In the famous revised reader in urban sociology, *Cities and Society,* compiled by Hatt and Reiss,[4] which consists of sixty-two papers, not a single one deals with this theme. The same could be said of similar other readings in our literature on urban sociology. Even when a paper or a section of it is devoted to education the focus is mainly on education *in* cities rather than on education *and* cities. This seems to be due to the facts that modern education is essentially an urban phenomenon and that the educational institutions are disproportionately concentrated there.

One refreshing exception to this otherwise general trend is Roberts'[5] paper concerned primarily with the role of education in conditions of unplanned rapid urbanization. Based on Latin American data, he delineates how education 'gains an unintended role as an available and visible means of social differentiation' under such a situation. Of course, the

situation is not uniform, and the level of industrialization of a country is identified as a crucial factor. Roberts concludes that changes in social structure must accompany educational development if it is to have the intended effects.

Drawing insights from Roberts' analysis, I have attempted in this paper to elucidate in broad and general terms the dynamics and implications of the relation between urbanization and educational growth in India.[6] The first two sections trace briefly the social history of urbanization and modern education respectively. The subsequent sections focus on such issues as the urban bias in the education system, the limitations on the role of education as a channel of social mobility, 'qualification escalation' and unemployment of the educated persons, and the role of private enterprise in education. The concluding section ties up the main observations. The analysis here is not based on any fresh data, rather it involves a synthesis of existing research to see if there is a pattern.

I

Although 'the roots of urbanism go deep into Indian history',[7] as Karl Marx has argued, the self sufficient character of the local village communities definitely limited the growth of cities in India, and cities never came to play a dominant role till well into the eighteenth century.[8] About the nature of pre-colonial urban centres Saberwal[9] writes that

> (they) had tended to be political at the core, their rise and fall often closely linked to the sponsoring political regime, though the addition of commercial and religious activities would give the urban centre a certain immunity from political vicissitudes.
>
> The seventeenth and eighteenth centuries saw the establishment of the European trading posts . . .

The advent of the East India Company constitutes a land-mark in history of urbanization in India. With the consolidation of the Empire in the country and under the colonical impact, not only new urban settlements came into being but also many of the old ones were recast and regenerated. Throughout the British sojourn the rate of urbanization was steady though slow. The percentage of growth in the urban population during the decades ending in 1901-11,-21,-31, and -41 was 0 3, 8.3, 19.1 and 32.0 respectively.[10]

According to Davis,[11] 'the relative slowness of economic development in India' is responsible for the slowness of her urbanization. 'Although nobody knows the past Indian rate of economic development', he argues that 'the evidence seems to indicate that it is not likely to have been rapid, compared to that of most other countries at roughly similar stages'. Saberwal[12] has observed that in the nineteenth century 'urban initiatives depended, by and large, upon the overarching, exogenic processes rather than upon endogenic evolution and control'. In fact, 'the colonial State was a decelerator, not an accelerator of industrialization in India'.

However, the rate of urbanization has been very rapid since Independence. During the decades 1941-51, 1951-61 and 1961-71 the growth rate of the urban population has been between 3.4 and 3.8 per cent per year (see Table 1). Analysing the growth of population in selected Class I cities, Bose[13] notes that 'the impact of the five year plans, and in particular, programmes of industrial

development, is evident from the pattern of urban growth'.

According to the 1971 Census, there are 2,643 towns and cities in the country, in which lived 108.8 million people, i.e., 19.91 per cent of the 547.4 million population in the country. Of these, 148 cities have a population of over 1,00,000 persons. In all 60.9 million people lived in these cities, forming 55.8 per cent of the total urban population and 10.2 per cent of the total population of India.[14] Of course, less than a fifth of India's population is urban. But the fact that India has an urban population of 109 million is more important in examining the problem of urbanization.[15]

II

Whatever may have been the origin of modern education in the 'Mother country'[16], in India it was introduced as a part of the British colonial framework. The British wanted (a) to staff their vast and elaborate bureaucracy with inexpensive but loyal natives ; (b) to familiarize the Indians with the modalities and values of the capitalist economic system, and also to develop in them a taste for British products ; and (c) to consolidate and maintain their dominance in the country. English education was the one instrument that could achieve all this.

This does not mean that the British embarked upon a programme of mass English education in India. What they were concerned with was shaping a small class of English—educated Indians, who may act, in Thomas Babington Macaulay's words, as 'interpreters between us and the millions whom we govern—a class of persons Indian in blood and colour, but English in tastes, in opinions, in morals and in intellect'.[17] This class was expected to filter down to the masses the knowledge and values it had acquired and internalized.

In conformity with the aims of their educational policy most of the educational institutions established by the British were colleges and high schools, and were located mostly in urban centres. The urban bias and top-heaviness of the educational system no doubt had detrimental consequences for primary schooling in rural areas. 'At the turn of the century three out of four villages were without a school, and less than one-fifth of the boys of school going age were in schools'.[18] The colonial economic policies-especially, divesting the indigenous educational institutions of their financial support and State patronage—death blow to the indigenous systems of education.[19] Only 12.2 per cent of the population of British India was in fact, literate in 1941 !

The curriculum of English education was in consonance with the colonical economic and employment policies[20]. All higher appointments in almost all the service were in effect reserved for the British. Added to this was the absence of (or, in fact, opposition to:) any policy of industrialisation.[21] This meant limited opportunities for qualified and trained Indians excepting perhaps in the lower echelons of the bureaucracy and in the teaching line. In fact, English, education created a large number of 'unemployables'.[22]

Nevertheless, it can hardly be gainsaid that for those aspiring for official positions, professional status or leadership roles in the emergent order, English education became indispensable. Henry Hardinge even made the policy of giving preference to the English-educated among

the Indians in government appointments explicit.

Moreover, the administrative, judicial and commercial institutions introduced by the British demanded proficiency in English. Since the vast majority of the Indians were vitally affected by these emergent institutions and were not able to understand the modalities of their operation, they were forced to depend upon those who were English-educated. This coupled with the fact that English was the language of the ruling class bestowed unprecedented prestige on the English-educated Indians.

The process of urban growth ushered in by the British, theoretically at least, disrupted the established means of evaluating people and allocating them their respective social positions. And formal education became significant as a credential in a social context where formal credentials became increasingly important in categorizing a population. Not only was a new scale of socio-economic status created, but also, the education system introduced being based on universalistic criteria, there opened up the possibility for upward social mobility for groups which had hitherto been denied such opportunities.

But it is necessary to emphasize that modern education with its pronounced urban bias entered India as a scarce commodity capable of conferring both economic and social status, and as a part of the emerging market economy. The principle of universalistic criteria of admission and the implied mobility potential on a large scale were, therefore, rendered only superficial. Because of the initial advantage of their high status, the benefits of English education also accrued to the upper caste groups - the Bengali Kayasthas, the Tamil Brahmins, and the Marathi Chitpavans - and the well-to-do in the urban areas.[23] Thus emerged the first generation of indigenous English-educated industrial, commercial, political and intellectual elite in urban India.

There was a constant pressure, both direct and indirect, from the early generation of English-educated Indians for the establishment and expansion of the English system of education. Even the national schools that were started during the Swadeshi movement followed the English pattern.[24] Given the rising demand for English education and the policy of State withdrawal from higher education - a policy implanted from Britain - there arose bright prospects for private enterprise in Education.

By the time of her Independence, India had a growing system of education. 1,72,661 primary schools; 12,843 middle schools; 5,297 secondary schools; 636 colleges; 20 universities; about 9,00,000 school and 3,00,000 university student population; and an expenditure of 570 million rupees (or less than a half per cent of the national income) constituted her educational infrastructure.

After Independence the colonial heritage in education expanded phenomenally. In 1975-76 the number of universities rose to 101, and in addition, there were nine institutions deemed as universities, nine institutions of national importance and forty-seven research institutions. The number of colleges of general education, professional education and other education (both post and undergraduate standards) rose to 3,667; 3,276; and 1,405 respectively. There were 43,054 high/higher secondary, 1,06,571 middle, 4,54,270 primary and 5,658 pre-primary schools. In addition,

there were 2,496 schools for vocational education, 358 schools for special education and 20,699 schools for other education.

A total of 3,113,078 college students and 89,677,015 school students were enrolled for general education in that year. The corresponding numbers for professional education being 1,462,118 and 224,210 respectively. In all there were 3,069,359 teachers. And, the total expenditure on education for the year was 21047.030 million rupees (or 3.42 per cent of the national income).[25] However, the system of education remained largely intact in its structural and organizational features. With the rapid expansion of the education system, the associated problems multiplied and the crisis attendant upon it accentuated over the years.[26]

III

A salient feature of the phenomenal expansion in education is the pronounced tenacity of urban bias. It is true that there are more number of schools and colleges in rural areas, and more number of rural people are attending them now than on the eve of Independence. It cannot be denied, nevertheless, that *in relation to the percentage of their* population, there are relatively many more colleges and high schools, if not lower level educational institutions, in urban areas. This is inspite of the professed goal of reducing rural—urban disparities and the various programmes of rural development.

Most of the educational facilities in 1970-71, especially those of higher education, *were concentrated in urban areas.*[27] It is seen from Table 2 that 78.4 per cent of the colleges for general education and 83.5 per cent of the colleges for professional education were located in urban areas.[28] While this is at least understandable, it is surprising to note that 38 per cent of the high/higher secondary schools were also located in urban areas. The location of middle and primary schools seems to be equitable as between *rural and urban areas* : 82.7 per cent of the middle and 90.9 per cent of primary schools respectively were located in rural areas. But a majority of the pre-primary schools (58.5%) *and schools for vocational* education (81.9%) were located in urban areas.

The available statistics further indicate a concentration of trained teachers in cities and, more generally, in areas with high literacy rates. The *single—* teacher schools in rural areas, which should *have the best qualified teachers,* probably have the least competent.[29]

This is also confirmed by the Second All India Educational Survey[30] which found 'many instances of disproportionate allocation of teachers in rural and urban areas'. Even the efforts of private enterprise in the field of education are generally confined to the urban areas (see *Infra* pp 20-21).

A related aspect of the urban bias in the location of educational facilities is the allocation of finance. Definite data on this dimension of rural—urban inequality in educational opportunities are hard to come by. But inferences can be drawn about this from the data on the educational budget.[31] The share of national income allocated to education increased from 1.2 per cent in 1950-51 to 3.4 per cent in 1975-76. But the share of school education out of the

total allocation for education has consistently declined during the six Five Year Plans: from 78.9 per cent in 1950-55 to 51.6 per cent in 1980-85. Added to this is the very limited scope for private finance for school education.[32]

The declining trend in the allocation of finance for school education has been accompanied by an increase in the allocation for post school education. The share of university education in plan allocation, has increased over the six Plans from 10.5 per cent in 1950-55 to 19.3 per cent in 1980-85. If we add the allocation for technical education to that for university education the percentage of allocation for post-school education shoots up to 30.3. Since much of the facilities for higher, professional and technical education are concentrated in urban areas, and since most of the students in these institutions also tend to come from urban areas (see Infra P. 11-12) any increase in the allocation for higher education is sure to favour the urbanites at the cost of their rural brethern.

Moreover, not all the amount allocated for school education is spent on rural areas. A substantial proportion of schools are located in urban areas, and also the urban response to the school is more favourable as compared to the high rates of wastage and stagnation at the primary level in rural areas.[33] Consequently, even in the absence of exact figures, we will be justified in concluding that a substantial share of the allocation for school education benefits the urban areas.

A second aspect of the urban bias in the system of education has to do with curriculum. Ponsioen[34] has argued that by its origin and nature formal education is an urban phenomenon. While one may contest this as an universal generalization, its validity with reference to modern education in India can hardly be denied. This may be more obvious with reference to higher education. But the fact that the school in any village represents an external influence transmitting urban standards in many ways is seldom recognized.[35]

The prevailing system of education has been designed, recommended, introduced and nurtured by elites from urban areas. These elites are probably unconsciously influenced by the needs of people of their own strata and are unable to perceive the felt needs of others. Available evidence[36] of the structure and the contents of curriculum at all levels of education seems to substantiate this. The need for rooting schools in the community and linking them with the latter's ecology, emphasized by educational strategists like Curle,[37] seems to be a far cry in India.

A corollary of the concentration of educational facilities in urban areas is the unequal representation of rural students in educational institutions, especially at the higher levels. In 1961-62, an overwhelming majority of students in research institutes (89.2%) and a majority of students in universities (63.9%), in colleges for general education (62.4%) in professional education (64.2%), and in special education (59.4%) originated from urban areas. Furthermore, a majority (53.1%) of high/higher secondary students also belonged to urban areas. The representation of rural children was fair in the middle schools (69.8%) and primary (81.0%) schools, while it was small in pre-primary schools (28.9%)

and schools for vocational education (36.9%).

The situation has remained unchanged even in 1973-74. According to the *Third All-India Educational Survey*, the total enrolment in institutions of higher education from urban areas was 18.72 lakhs, constituting 83.6 per cent of the total enrolment in institutions of higher education (see Table 3). That the students enrolled at the more important institutions of higher education 'generally tend to come from urban areas' has also been observed by the Education Commission (1964-66).[38]

Di Bona[39] records that the students from rural and agricultural backgrounds form only four per cent of the university students community at Delhi, five per cent at Bombay, ten per cent of college students at Poona, nineteen per cent in Gujarat and twenty per cent at Aligarh. 'Allahabad appears to have a high proportion of such students, although not as great as Kerala with thirty-five per cent'. Sociological analyses of the background of students in higher and professional education have confirmed this aspect of the urban bias in Indian education.[40]

That our education is urban oriented, and that it is the urban population which has benefited relatively more from the available educational facilities have also been revealed by census data. Estimation from one per sample data of the 1971 Census (see Table 4) shows that a majority of matriculates (59.7%), technical diploma or certificate holders (52.1%) and an even greater majority of graduates (75.5%) are living in urban areas. Only 0.6 per cent of the population are graduates, and including them only 3.9 per cent of the population are educated upto or beyond matriculation. And, of these, 75.5 per cent of the former and 62.1 per cent of the latter are in urban areas.

The essence of a society's educational effort is to be seen in the level of literacy attained by its members. Only about a third of Indian's population, excluding the age-group 0-4, was literate in 1971 (see Table 5). Nearly sixty per cent of the urban dwellers are literate and the corresponding percentage for their rural counterparts is considerably less (i. e., 27). An analysis[41] of the literacy level of cities with a population of over 100,000 reveals that nearly seventy per cent (99/142 or 69.7%) of them have a literacy rate of fifty per cent or more. All the eleven cities having a population of over 800,000 have a literacy of over fifty per cent. Only in three (i. e., 2.1%) of the lakh-plus cities is the percentage of literacy lower than the national average.

An inevitable consequence of the urban bias in our education has been the gross and unrepentant neglect of lower education, whose importance in a country wherein the majority of the population is illiterate and lives in rural areas cannot be exaggerated. Not only is rural education neglected, in its present state it is also suffering from serious ills.[42] Much of the educational neglect at the lower levels can be traced to the present policy of breakneck expansion in higher education in the urban areas.[43]

The urban bias in the educational system is sometimes defended on the ground that in the potential progress of developing countries, the city plays a dynamic multiple role and it is the focal point for change and progress; and that

such a bias is not entirely unknown even in the industrially advanced countries of the West. Yet another and stronger rationalization comes from the advocates of technical efficiency and economic tenability which, according to them, necessitate educational facilities to be developed as a part of an urban-industrial complex[44]. But these arguments are untenable as they contradict the role of education as a solvent of inequalities, a role which is much lauded throughout the world.

IV

The phenomenal growth of education in urban areas could be viewed as a *renewed response to a sustained demand.* There are two aspects of the demand for education : First, there is the planner's demand for education determined in relation to the manpower requirements for the programmes of economic development. This is premised upon the belief that education is the foundation and vehicle of national development.[45]

But the more important source of the demand for education could be viewed as an *expression of consumer's preference.* The answer to the question why individuals demand education is, of course, not a simple one. A major reason for this is no doubt the status significance that education carries with it. On the one hand, just because social status has *been a function of education some* people may, 'consume' education, though it may not have any instrumental significance for them.

On the other hand, under conditions of rapid urbanization competition for available jobs and social benefits intensifies, making educational credentials an increasingly significant means of allocating them. It has been found that a *higher* qualification fetches a job quicker but not necessarily better, *although* the chances of earning more later are bright.[46]

Also, since education is 'the badge that relieves (individuals) of any obligation to soil their hands'[47] it mans an escape from manual work. In brief, when occupation is a ladder for social mobility the need for education for an individual becomes indispensable.

At the *group* level, much of the pressure for *educational expansion* could be thought of as a response to the urge of social groups which had not previously been associated with education and professions which now possess the resources and ambitions necessary to seek entry to them. This is witnessed by the growth of educational institutions run by community or caste groups in several urban centres.

The mobility significance of *education* is mainly meaningful with reference to the tertiary level. This is so as education is an avenue of upward social mobility primarily through occupational mobility. This implies that generally the higher requirement for entering it. For instance, professions such as medicine, engineering and management which rank very high on the *occupational prestige hierarchy*[48] requires seven to eight years of post—school education, and a few more years of informal training.

The status and mobility significance of higher education is reinforced by the fact that the supply of higher education is not adequate enough to meet the increasing demand for it. *In fact* the growth of higher education in India has not been coping with the rising demand

for it.[49] Thus, there exists a 'demand—supply lag' in higher education, and not all those who demand higher education are supplied with it, even in urban areas.

Under these circumstances the educational system itself may become more rigid and complex, and impose certain constraints which are both formal, and informal and material and non-material (e.g., the new work of application formalities, the rules and regulations governing the allotment of seats, the cost involved, etc.), so that the demand for higher education is effectively contained.[50] Although some students have the necessary aptitude and merit they are kept out of higher education as they cannot cope with the complexity of the educational system.[51] In the ultimate analysis, it is the socio—economic factors which determine as to who can effectively over come the rigidity and complexity of the system and the constraints which it imposes.

Obviously then, while the system of education is predominantly beneficial to the urban dwellers, even among them only a select few succeed in receiving higher education. The studies of the social origins of the under—graduate women students in Mysore[52] and Delhi,[53] medical students in Mysore,[54] technology students in Delhi,[55] management students in Ahemedabad,[56] and as also those in other professional courses[57] in other urban centres have indubitably demonstrated that they are predominantly drawn from among the higher socio—economic status families characterised by high education, occupational and income backgrounds. This is further confirmed by the all—India field study of the National Council of Educational Research and Training.[58] Based on an analysis of a sample of students in Bangalore, Jayaram[59] has concluded that higher education is a mechanism more for retaining and transmitting status than for social mobility. Focusing further upon medical students he even suggests that in the rewarding world of medical doctors there is a strong element of occupational inheritance.

All this should not however, imply that education has not contributed at all to the process of upward social mobility in urban areas. The presence of first generation educants in schools in general and colleges in particular would substantiate this. Part of this mobility is sponsored by the government as part of its measures for ameliorating the status of the scheduled castes/tribes and other backward classes. And part of it has been the outcome of the strategy of the economically dominant groups at coverting their status parameter, i e., from land holding and economic assets to education. However, considering the phenomenal growth of higher education in the last three decades or so, the extent of such mobility appears to be only marginal.

Thus, some people from the lower strata are more educated and better employed than they were a few decades back, partly because of the widening of opportunities in education and occupation, and partly because of the policy of protective discrimination. But, it remains a stubborn fact that the relative advantage of the upper strata and the informal barriers to the higher status occupations have not only persisted but also become strengthened.[60] This may mean that there has been 'a secular decline in the mobility role of education, perhaps a hardening of social arteries' in the past few decades.[61] Not surprisingly then, there has been an overall stability of status structure in urban India.[62]

V

We may now turn to an important factor limiting the mobility role of education in urban areas. The relation between education and occupation, or more appropriately, the occupational significance of education has not remained stable. As Dore[63] puts it, 'people's ideas as to what qualifications fit what jobs tend to change over time'. This is to a considerable extent determined by the equation between economic development (more particularly, industrialization) and growth in education.

In India the generation of employment has been inordinately slow as compared to the output of people with educational credentials. Thus, there is an increasing availability of people with educational credentials in relation to the availability of jobs (see Infra P. 19). This has resulted *in a constant rise in educational qualifi*cations for jobs without any necessary relation to more effective job performance or sophistication demended by the economy.[64]

The *escalation of educational qualification for jobs, or 'educational inflation'*, necessarliy dilutes the mobility significance of education in relation to occupation. In brief, while educational qualifications may be essential for obtaining a job in urban areas, since they are widely held, there is less likelihood of discrimination between job aspirants. And other things remaining the same, a more 'qualified' person (i.e., one possessing higher/more degress) is more likely to be appointed for a job though it does not warrant such a high qualification. Thus, with rapid urbanization, education tends to weaken as a bestower of social status.

The rapid growth of *urbanization* and an even outpacing growth of education have been essentially unplanned. Neither of them is linked to economic development in general and industrialization in particular. According to Bose,[65] 'it is doubtful whether, even after twenty years, industrialization will be able to keep pace with urban growth'. As Roberts[66] rightly argues,

> economic under-development and slow rates of economic growth . . . mean that any rise in educational levels are produced by the greater efficiency of urban centres in educating their populations and are a phenomenon of urban rather than economic development.

But more disquieting is the increasing incidence of unemployment among the educated persons in urban areas. Between 1956 and 1974, the number of unemployed shot up from 5.3 million to over 15 million. The number of registered unemployed (only a fraction of the total) increased from 335,000 in 1951 to 9,315,000 in 1975—a twenty-eight fold increase in twenty-four years.[67] Quoting the Bhagwati Committee Report, Mitra[68] writes that

> while the number of matriculate job seekers nearly tripled between 1966 and 1972, the number of undergraduate job seekers quadrupled and that of graduate job seekers increased six-fold during the same period.

The Planning Commission estimates[69] based on the Thirty-Second Round of the National Sample Survey are more revealing. The rates for 'usual', 'weekly' and 'daily' status unemployment (during 1977-78) for urban areas were 8.77, 7.86

and 10.34 per cent respectively. The corresponding percentages for all-India were 4.23, 4.48 and 8.18 respectively. Further,

> the rate of usual status unemployment rose progressively from 2.28 per cent in the case of illiterates to 3.61 per cent at the primary level, 15.15 per cent at the secondary level and 15.76 per cent at the level of graduates and above. The Live Register Statistics of Employment Exchanges also indicate that more than fifty per cent of the job-seekers are educated, including many with a university degree.

Interestingly enough, the facts that the problem of unemployment of the educated persons is worsening year after year and the mobility significance of education has relatively declined have not caused a set back to the rising demand for education. Dore[70] has generalized that

> the paradox of the situation is that the worse the educated unemployment situation gets and the more useless educational certificates become, the *stronger* grows the pressure for an expansion of educational facilities.

According to him, if one finds that the education he has acquired does not get him the job on which he has set his sight, than he will try to get *more* education. In fact, his chances may improve !:

> The mechanism of 'qualification escalation' ensures that once one is in the modern-sector-qualification range, the higher the educational qualification one gets the better one's chances of getting *some* job.

VI

The continuously rising demand for education, the government's inability to meet this demand and the resulting scarcity of educational facilities have together given a fillip to private enterprise in education. This enterprise is largely capitalistic in its orientation and operates strictly according to market conditions. It generally caters to the affluent sections and the 'middle class mobiles' in urban areas. The practice of charging capitation fee, collecting donations, etc. are all part of this syndrome.

The capitalist entrepreneurial orientation and the resulting hold of private enterprise in education is revealed by the data presented in Table 6. Nearly three-fourths of all colleges for general education (73.9%) are privately managed. Though only 43.7 per cent of all colleges for professional education are in private hands, the majority of professional colleges of degree and post-graduate standard (51.8%) are privately controlled.

Turning to school education, private enterprise is confined to high/higher secondary school and pre-primary education. A majority, i.e., 66.2 per cent of the former and 73.1 per cent of the latter are privately managed. Private enterprise is least enterprising in primary and middle levels of schooling : only 16.1 per cent of the former and 26.1 per cent of the latter are privately managed.

Moreover, of the 2,878 arts, science and commerce colleges surveyed by the

University Grants Commission,[71] 2,318 (80.5%) were privately managed and 1,513 (65.3%) of these private colleges are in urban areas. Analysed differently, 1,513 of the 1,968 (or 76.9%) of the colleges in urban areas are privately managed.

It is also significant to note that 73.9 per cent of the students in arts and science colleges, and 52.4 per cent of the students in degree and post—graduate standard professional colleges are attending privately run institutions. Similarly, 65.9 per cent of high school and 77.5 per cent of pre-primary school students are attending private schools. The percentage of students attending private schools is minimum at primary (17.0%) and middle (23.8%) levels.

Private control over education is far more pervasive than what either its domain or legal authority would suggest. Based on an intensive study of seven colleges in Kanpur, Nirmal Singh[72] has examined the nature and consequences of the resulting 'siege' of public education by private control. Singh's analysis reveals that with the emergence of second and successive generations of private managements, the early munificence and genuine concern for education has waned. And, with the increasing possibility of converting educational resources into non-educational services and goods, the private managements came to acquire more and more the characteristics of a specialized 'pure' management.[73]

The perspectives obtained by Singh's analysis may well be true of private colleges in other parts of the country. They may also be applicable to private enterprise in professional education in some southern states. It is to be feared that if some colleges do not by now fit into the 'pure' management model they may not be lagging far behind.[74]

The private enterprise in urban education has accentuated the hierarchy of educational institutions, reflecting and perpetuating social inequality. The posh 'public' and private English medium government institutions at the bottom constitute the two extremes of this hierarchy. These institutions in the hierarhy vary in terms of the sources of finance, machinery for social control, medium of instruction, social *milieu*, process and direction of socialization, and last but not least, the class clientale. The top-most institutions cater to students from among the affluent sections and the bottom—most ones generally cater to the students from the lower strata and those belonging to manual workers' families. The educational experience, if at all any, of the most deprived sections of the urban society living under wretched conditions in slums is appalling.[75]

VII

Both modern urbanization and the modern system of education originated in India as a consequence of colonial politico-economic policies, and, initially at least, both of them served the interests of the British colonialists. Both of them grew slowly but steadily until Independence. But they have grown rapidly since then, perhaps education more rapidly than urbanization. However, the growth of both urbanization and education has by and large been unrelated to the nature and extent of the economic development of the country, and even less to its industrialization. That is, the growth of education seems to be more closely

related to rapid urbanization than to economic development.

The lack of coordination between economic development and educational growth has resulted in a contradictory educational situation : On the one hand, an overwhelming majority of the population, living mostly in rural areas, is un-or under-educated and even illiterate. On the other, a minuscule minority, confined mostly to urban areas, is over-educated. Under the latter condition of educational inflation, the problem of unemployment of the educated persons has worsened. Also, there has been a rising escalation of qualification for available jobs, and consequently a devaluation of academic degree and certificates.

The educational growth in the country, more so since Independence, has been essentially urban biased. This is particularly true in the case of higher education. The urban bias manifests itself in the location of educational facilities, allocation of finance and content of curriculum. As a corollary to this we find that a majority of the post-school students in general and an overwhelming majority of students in professional courses in particular are drawn from urban areas. The urban bias in the educational system has patently resulted in the neglect of rural education.

The perennially rising demand for education, especially at the tertiary level, in urban areas is mostly in view of its tie up with occupation and social status, and the prospects it holds out for upward social mobility. Considering the phenomenal growth of education, the actual extent of mobility is, however, only marginal. Further, as a result of the escalation of qualifications for jobs and 'educated unemployment' the nature of mobility is also trifling. Higher education seems to have functioned, therefore, more as a stabilizer of social status and transmitter of privileges in an urban setting.

Paradoxically, notwithstanding the devaluation of degrees, 'educated unemployment' and the decline in the mobility role of education, the demand for education has been unabated. With the government assuming the role of a passive onlooker, with neither a sense of direction nor the political will to intervene effectively, private enterpries has had a field day finding the education a lucrative proposition. On the one hand, private enterprise has come to acquire the characteristics of a 'pure' management with capitalistic orientation. On the other, this enterprise has ably subserved the interests of the affluent sections of society and has further contributed to the stabilization and prepetuation of inequalities.

Whether rural-urban disparities will be resolved and whether inequalities in urban areas will be erased at all in the foreseeable future is a moot question. But none can deny that these disparities and inequalities will have a lasting impact on the future of our society. One thing is certain, and that is, planning largescale educational changes to overcome the crisis confronting it under conditions of unplanned rapid urbanization is and will continue to be infructous. And, the talk of orderly urbanization under capitalist market conditions is moonshine. Thus, any plan for an orderly urbanization and a well-conceived educational change has to be premised upon securing the long overdue changes in the social structure as a whole.

NOTES

1. Quoted in B. Roberts, 'Education, Urbanization, and Social change'. *in* R. Brown (ed), *Knowledge, Education and Cultural Change*) London: Tavistock, 1973), p. 142.
2. J. A. Lauwerys and D. G. Scanion (ed), *Education in Cities* (London: Evans Brothers, 1970), p. xi.
3. Cf. R. E. Pahl, *Whose City? and Further Essays on Urban Society* (Harmondsworth, Middlesex; Penguin Books, 1975).
4. P. K. Hatt and A. J. Reiss Jr. (ed) *Cities and Society* (revised edition) (New York: The Free Press of Glencoe, 1957).
5. Roberts, *op. cit.*
6. In outlining my views here I have largely drawn upon my earlier work on urban education. See e.g., 'Some Aspects of Urban Bias in Indian Education', *Vidya Bharathi*, 3(1), 1977, pp. 30-39; 'Social Implications of Medical Education in India', *Journal of Higher Education*, 3(2), 1977, PP. 207-20; 'Higher Education as Status Stabilizer: Students in Bangalore', *in* S. Saberwal (ed) *Process and Institution in Urban India* (New Delhi: Vikas, 1978), PP. 169-191; and 'Higher Education, Inequality and Social Change in India', Sociological Bulletin 28 (12), 1979, PP. 46-68.
7. S. Saberwal, 'Indian Urbanism: a Socio-historical Perspective', *in* Saberwal (ed), *Process . . .*, *op. cit.*, p. 1.
8. See A. Giddens, *Capitalism and Modern Social Theory* (Cambridge at the University Press, 1971), p. 26. This point has been endorsed by Weber later, see M. Weber, *The City* (Glencee, 111. The Free Press, 1958), PP. 82, 84, 60 ff.
9. Saberwal, 'Indian Urbanism . . ,', *op. cit.*, p. 2,
10. A. Bose, *India's Urbanization 1901-2001* (second edition) (New Delhi: Tata McGraw-Hill, 1978), p. 341 (T 2).
11. K. Davis, 'Urbanization in India: Past and Future', *in* R. Turner (ed), *India's Urban Future* (Berkeley: University of California Press, 1962), p. 8.
12. Saberwal, 'Indian Urbanism . . .', *op. cit.*, Pp. 4 and 8.
13. Bose, *op. cit.*, p. 20.
14. *Ibid.*, p. 18.

15. A. Bose, *Studies in India's Urbanization 1901—1971* (New Delhi: Tata McGraw-Hill, 1973), p. 18. In order to highlight this point he distinguishes between the *level* of urbanization 'measured by the proportion of urban population' and the *scale* of urbanization as 'measured by absolute numbers'.

16. See M. S. Archer, *Social Origins of Educational Systems* (London: Sage 1979). See also G. H. Bantock, *Education in an Industrial Society* (London: Faber and Faber, 1973) second edition, (Ch. 3 and 4).

17. In H. Sharp, Selections from Educational Records (Part I 1781-1839) (New Delhi; Published for the National Archives of India by the Manager of Publications, Government of India, 1965), p. 116.

18. A. Basu, 'Policy and Conflict in India: The Reality and Perception of Education', *in* P. G. Altbach and G. P. Kelly (ed), Education and Colonialism (New York: Longman, (1978), p. 59.

19. See Dharmpal, *The Beautiful Tree* (New Delhi: Biblia Impex, 1983).

20. The content of English education was biased in favour of language and humanities and against science and technology, as well as vocational learning. Basu, *op. cit,,* pp. 59-60 records.

    At the tertiary level the number of students in arts colleges was far greater than in professional colleges. In 1916-17, for instance, while there were 4,468 BAs and 1,228 LL Bs' there were only 74 engineering graduates and 219 Bachelors of Medicine.

21. The British government neither had a policy of industrialization for India nor did it encourage private enterprise in India. The British business community reacted sharply to any effort at industrialization made by a provincial government. See *Report of the Indian Industrial Commission, 1916-18* (Vol. I) (Calcutta: Government Printing Press, 1918), p. 70.

22. See M. Edwardes, *British India 1772-1947* (London; Sidgwick and Jackson, 1967), p. 242.

23. See J. Hennessy, 'British Education for an Elite in India (1780-1947)', *in* R. Wilkinson (ed.) *Governing Elites* (New York: Oxford University Press, 1969), Pp. 135-92.

24. Basu, *op. cit.,* p. 62.

25. The statistics in this and the previous paragraph are from J. P. Naik, The *Education Commission and After,* (New Delhi: Allied, 1982), PP. 250-53, Appendix VII

26. *Ibid.*, Pp. 149-71.

27. Defined as in 1971 Census.

28. For details on higher education, see Table 3. The State of Kerala, where the number of colleges is more in rural areas than in urban areas, is an exception.

29. G. Myrdal, *Asian Drama* (Vol. 3) (Harmondsworth, Middlesex: Penguin Books, 1968), p. 1732.

30. National Council of Educational Research and Training, *Second All India Educational Survey* (New Delhi, National Council ... 1967), p. 94.

31. Figures for 1950-51 are from H. N. Pandit, 'Financing of School Education; Progress and Problems', *Economic and Political Weekly*, 7 (31, 32 & 33), 1972, p. 1653: for 1950-55 are from The National Institute of Education: *The Indian Year Book of Education 1961* (New Delhi: National Council ..., 1965), p. 12; for 1975-76 are from Naik, *op. cit*, p. 253; and for 1980-85 are from Planning Commission, Government of India, Sixth Five Year Plan 1980-85 (New Delhi: 1971), p. 361.

32. Pandit, *loc. cit.*,

33. See Agricultural Economics Research Centre, University of Delhi, *Primary Education in Rural India* (New Delhi: Tata Mc Graw—Hill, 1971), pp. 19-22.

34. J. A. Ponsioen, *National Development* (The Hague: Mouton, 1968), p. 238.

35. See B. R. Chauhan, *A Rajasthan Village*, (New Delhi: Vir, 1967), p. 232.

36. See N. Jayaram, *Educational and Social Structure* (Ph. D. Thesis is Sociology, Bangalore University, Bangalore), esp. Ch. X and VII.

37. A. Curle, *Educational Strategy for Developing Societies* (second edition (London: Tavistock, 1970), p. xiv.

38. Students from urban areas formed 87.2 per cent in the institutes of technology, 68.2 per cent in medical colleges, 65.9 per cent in engineering colleges, 58.8 per cent in regional engineering colleges and 55.6 per cent in polytechnics. The notable exception is in agricultural colleges where they formed only 41 per cent. See Ministry of Education, Government of India, *Education and National Development* (Report of the Education Commission, 1964-66) (reprint edition) (New Delhi: National Council ..., 1971), p. 216.

39. J. Di Bona, 'Modernizing and Parochialization in Indian Higher Education—The Role of the University in Facilitating Rural-Urban Mobility', *in* R. G. Fox (ed), *Urban India: Society, Space and Image* (North Carolina: Duke University Press, 1970), p. 80.

40. See e. g., C. Rajagopalan and J. Singh, 'The Indian Institutes of Technology—Do They Contribute to Mobility?', *Economic and Political Weekly*, 3 (14), 1968, reprint p. 1; B. R. Sharma, 'What Makes a Manager : Merit Motivation or Money?', *Economic and Political Weekly*, 7 (22), 1972, p. M 63 ; B. R. Sharma, 'Professionals in the Making : Their Social Origin', *Economic and Political Weekly*, 11 (9), 1976, p. M5; and Jayaram, 'Higher Education as Status Stabilizer...', *op. cit.*, PP. 181-82.

41. Based on Bose, *India's Urbanization*, *op. cit.*, pp. 397-99, T 38.

42. Agricultural Economics Research Centre, *op. cit.*

43. See A. Sen, The Crisis in Indian Education', *in* S. C. Malik (ed), *Managemet and Organization of Indian Universities* (Simla : Indian Institute of Advanced Study, 1971), p. 256. See also A. Mitra, *India's Population : Aspects of Quality and Control* (Vol 2) (New Delhi) : Abhinav, 1978), pp. 611-12.

44. According to Roberts, *op. cit.*, p. 142, 'irrespective of the level of ecenomic development, urban organization is conducive to formal education. Urban population concentration makes possible economies in educating large numbers of children. More significantly, even relatively unskilled urban occupations have less use for child labour than have agricultural occupations.

45. Education is the most single factor in achieving rapid development and technological progress, and in creating a social order founded upon the values of freedom, social justice and equal opportunity, states the *Third Five Year Plan 1961-66*. See Planning Commission, Government of India (Delhi : The Manager of Publications, 1961), p. 573.

46. This is supported by a *Report on the Pattern of Graduate Employment* published by the Directorate General of Employment and Training in 1968. M. Blaug, R. Layrd and M. Woodhall, *The Causes of Graduate Unemployment in india* (London : Allen Lane, 1969), p. 4 observed that the average waiting period for a graduate to be about six months and for a matriculate to be seventeen months during 1966-67. E. Dhdakia, *Unemployment and Employment Policy in India*, (New Delhi : Sterling, 1977) p. 29 quotes a survey conducted by the University Employment Bureau of Gujarath which shows that the average waiting period for a graduate is about nineteen months and for a matriculate is about twentyeight months, during the year 1973-74.

47. Myrdal, *op. cit.*, p 1646.

48. See J. Jayalakshmi, *Social Status and Fertility* (Ph.D. Thesis in Sociology, Bangalore University, Bangalore), 1972 pp. 202-07.

49. See S. H. Rudolph and L. I. Rudolph, *Education and Politics in India* (Delhi : Oxford University Press, 1972), pp. 25-28.

50. For an analysis of this with reference to medical education, see Jayaram, Social Implications of Medical Education in India', *op. cit.*

51. It could also be argued that 'merit' measured in terms of performance in previous and qualifying examinations is itself strongly influenced by socio—economic factors. See N. Jayaram, 'Social Determinants of Academic Achievement—A Study of Students in Higher Education', *Guru Nanak Journal of Sociology*, 4(2), 1983, pp. 150-64.

52. C. Sivakumar, *Education, Social Inequality, and Social Change in Karnataka*, (New Delhi : Hindusthan Publishing Corporation, 1982), Ch.3.

53. K. Ahmad, 'Women's Higher Education : Recruitment and Relevance', *in* A. Singh and P. G. Altbach (ed), *The Higher Learning in india* (Delhi : Vikas, 1974), Pp. 180-201.

54. S. Sharadamma and C. Parvathamma, 'Some Aspects of Socio—economic and political Background of Medical Students in Mysore', ***Arts Journal of the Mysore*** *University* (Mysore), 24,1968, Pp. 49-56.

55. Rajagopalan and Singh, *op. cit.*, and A. D. King, 'Elite Education and the Economy—IIT entrance : 1965-70', *Economic and Political Weekly*, 5(35), 1970, PP. 1463-72.

56. Sharma, 'What Makes a Manager ...', *op. cit.*, Pp. M 51-66.

57. Sharma, 'Professionals in Making . . .', *op. cit*, Pp. M 5-10.

58. M. S. Gore, *et. al*, *Field Studies in the Sociology of Education - All India Report*, (New Delhi: National Council . . ., 1970).

59. Jayaram, 'Higher education as Status Stabilizer . . .', *op. cit.* PP. 169-191.

60. See S. Saberwal, 'Education, Inequality and Industrialization', *Journal of Higher Education*, 1(2), 1975, Pp. 191-92.

61. Saberwal, 'Epilogue : Focus and Milieu', *in* Saberwal (ed), *Process and Institution in Urban India*, op. cit., p. 243.

62. See N. V. Sovani, 'Occupational Mobility in Poona City Between Three Generations', *in Urbanization and Urban India* (Bombay : Asia Publishing House, 1966), PP. 90-105 : P. B. Jorapur, 'Intergenerational Occupational Mobility', *The Indian Journal of Social Work*, 31(4), 1971, PP. 461-67 ; and S. M. Dubey, *Social Mobility Among the Professions* (Bombay : Popular Prakashan, 1975).

63. R. Dore, *The Diploma Disease* (London : George Allen & Unwin, 1976), p. 4.

64. A similar phenomenon has been reported with reference to developed countries also, see C. A. Anderson, 'A Sceptical Note on the Relation of Vertical Mobility to Education', reprinted *in* A. H. Halsey *et. al.* (ed), *Education, Economy, and Society* (New York : The Free Press, 1965), Pp. 164-79.

65. Bose, *India's Urbanization . . .*, *op. cit.*, p. 127.

66. Roberts, *loc. cit.*

67. Quoted in D. Hiro, *Inside India Today* (London : Routledge and Kegan Paul, 1978), p. 85.

68. Mitra, *op. cit.*, 607.

69. Planning Commission, Government of India, *Sixth Five Year Plan 1980-85, op. cit.*, Pp. 214, 217 & 206.

70. Dore, *loc. cit.*

71. University Grants Commission, *Third All India Educational Survey* (*Higher Education*) *1973-74* (New Delhi, 1978), p. 53.

72. N. Singh, *Education Under Siege* (New Delhi : Concept, 1283).

73. *Ibid.*, p. xi. In its 'pure' form the private managerial control has expurgated itself of all commitment to internal educational norms and external societal ideals. It develops a specialist's expertise of manipulating men, money and material, making nonsense of the rules, regulations and legalities and obliterating any distinction between public trust and private appropriation.

74. Of course, to hold private management entirely responsible for the crisis in our education is too simplistic.

75. See A. S. Seetharamu, *Education in Slums* (New Delhi : Ashiah, 1983).

TABLE 1

Percentage (Decade) Variation in Population of India 1941-1971

Decade	Total	Rural	Urban
1941-51	13.3	8.8	41.4
1951-61	21.5	19.0*	34.0*
1961-71	24.8	21.9	38.2

* Adjusted for change of definition of 'urban area' in 1961.

Source : Adapted from A. Bose, *India's Urbanization 1901-2001* (second edition) (New Delhi : Tata Mc Graw-Hill, 1978), p. 19, Table 1.

TABLE 2

Location of Educational Institutions 1970-71

Type of Institution	Number of Institutions	Urban Areas Number	Urban Areas %	Rural Areas Number	Rural Areas %
Universities	82	75	91.5	7	8.5
Institutions deemed as Universities	9	9	100.0	—	—
Institutions of National Importance	9	9	100.0	—	—
Research Institutes	49	44	89.8	5	10.2
Colleges for General Education					
a) Degree and P. G Standard	2,285	1,841	80.6	444	19.4
b) U. G. Standard	313	198	63.3	115	36.7
Total of a) & b)	2,592	2,033	78.4	559	21.6
Colleges for Professional Education					
a) Degree and P. G. Standard	992	915	92.2	77	7.8
b) U. G. Standard	2,064	1,636	79.3	428	20.7
Total of a) & b)	3,056	2,551	83.5	505	16.5
Colleges for Other Education	1,285	538	41.9	747	58.1
Schools for General Education					
a) High/Higher Secondary	36,738	13,242	36.0	23,496	64.0
b) Middle Schools	90,621	15,717	17.3	74,904	82.7
c) Primary Schools	408,378	37,170	9.1	371,208	90.0
d) Pre-Primary Schools	4,174	2,440	58.5	1,734	41.5
Total of a), & b), c), and d)	539,911	68,569	12.7	471,342	87.3
Schools for Vocational Education	2,337	1,913	81.9	424	18.1
Schools for Special Education	305	281	92.1	24	7.9
Schools for Other Education	103,815	10,209	9.8	93,606	90.2

Source : Adapted from Ministry of Education and Social Welfare, Government of India, *Education in India 1970-71* (New Delhi : The Controller of Publications, 1978), Pp. 10-11, Table 1.01.

TABLE 3

Location of Higher Educational Institutions 1973-74

Type of Institution	Institution			Enrolment		
	Total No.	Urban No.	Areas %	Total No.	Urban No.	Areas %
University	111	93	83.8	274,154	249,239	90.9
Arts, Science & Commerce	2,878	1,968	68.4	1,684,815	1,376,553	81.7
Engineering, Technology & Architecture	80	61	76.3	57,481	46,195	80.4
Medicine	104	95	91.3	77,319	71,450	92.4
Ayurveda/Unani	72	61	84.7	13,629	12,133	89.0
Pharmacy	9	9	100.0	1,791	1,791	100.0
Dental	8	8	100.0	1,699	1,699	100.0
Nursing	10	10	100.0	989	989	100.0
Agriculture	9	6	66.7	2,618	2,203	84.1
Veterinary Science	3	2	66.7	692	522	75.4
Oriental	204	115	56.4	9,895	5,765	58.3
Physical Education	14	11	78.6	2,848	2,458	86.3
Music/Fine Arts	67	58	86.6	4,964	4,525	91.2
Education	278	277	81.7	44,531	37,664	84.6
Law	101	92	91.1	57,179	55,342	96.8
Others	19	19	100.0	4,275	4,275	100.0
Total	3,967	2,835	71.1	2,238,879	1,872,803	83.6

Source: Adapted from University Grants Commission, *Third All-India Educational Survey 1973-74* (New Delhi: 1978), Pp. 44-46 and 47-52, Tables 7 and 8.

TABLE 4

Distribution of Population by Education, India 1971

Level of Education	All Areas		Urban Areas			Rural Areas		
	Number	% Distribution	Number	%	% Distribution	Number	%	% Distribution
Total Population	5,454,958	100.00	1,086,030	19.91	100.00	4,368,928	80.89	100.00
Illiterate	3,874,037	71.02	521,407	13.46	48.01	3,352,630	86.54	76.74
Literate without Educational level	583,646	10.70	153,920	26.37	14.17	429,726	73.63	9.84
Primary	500,104	9.17	158,143	31.62	14.56	341,961	68.38	7.83
Middle	284,019	5.21	120,223	42.33	11.06	163,796	57.67	3.75
Matriculation/Higher Secondary	172,098	3.15	102,784	59.72	9.46	69,314	40.28	1.59
Non-technical Diploma/ Certificate (Not equal to Degree)	1,843	0.03	913	49.54	0.08	930	50.46	0.02
Technical Diploma/ Certificate (Not equal to Degree)	4		2,119	52.09	0.20	1,949	47.91	0.04
Graduate and above)	35.143	0.64	26.521	75.47	2.44	8,622	24.53	0.19

Note : Estimated from one per cent sample data.

Source : Adapted from Registrar General & Census Commissioner, India, ***Pocket Book of Population Statistics*** (Census Centenary 1972, (New Delhi: 1972). Pp. 70-73 and 74-79, Tables 13 A and 13 B.

TABLE 5

Literacy Rate of Population (Excluding 0—4 Age Group), 1971

Sex	Areas		
	Rural	Urban	Total
Male	38.8	69.5	45.3
Female	15.1	48.0	21.5
Persons	27.0	59.7	33.8

Source : A. Bose, *Studies in India's Urbanization 1901-1971* (New Delhi : Tata Mc Graw-Hill, 1973), p. 433, Table 176.

TABLE 6

Nature of Management of Educational Institutions 1970-71

Type of Institution	Government / Government Sponsored	Local Bodies	University or Board	Private Aided	Private Unaided	Total
1	2	3	4	5	6	7
Institutions deemed as Universities	3	...	5	1	...	9
Institutions of National importance	8	...	...	1	...	9
Research Institutes	22	1	1	21	4	49
Colleges for General Education :						
a) Degree & P-G Standard	432	16	68	1,422	347	2,285
b) U-G Standard	160	...	2	102	49	313
Total of (a & b)	592	16	70	1,524	396	2,598
Colleges for Professional Education (Excluding Teacher's Training)						
a) Degree & P-G Standard						
Agriculture	25	...	21	12	1	59
Commerce	6	...	4	72	43	125
Engineering, Technology & Architecture	56	...	12	29	10	107
Fine Arts	21	1	3	29	2	56
Law	6	1	10	22	52	91
Medicine	105	6	2	49	17	179
Pharmacy	2	...	...	3	...	5
Physical Education	12	...	...	9	...	21
Veterinary Science	12	...	10	...	...	22
Others	26	1	4	21	1	53
Total	271	9	66	246	126	718

b) U-G Standard Agriculture	17	...	1	6	1	25
Commerce	2	...	...	19	119	140
Engineering, Technology &						
Architecture	522	...	1	92	16	631
Fine Arts	12	...	...	32	10	54
Medicine	5	...	...	22	10	37
Physical Education	...	...	...	13	1	14
Others	70	4	...	15	10	99
Total	628	4	2	199	167	1,000
Total of a) & b)	899	13	68	445	293	1,718
Colleges for other education (P-G, Degree, and U-G Standard)	55	4	2	1,088	136	1,285
Institutions for Teachers' Training	906	2	10	564	80	1,562
Schools for General Education						
a) High/Higher Secondary	6,957	5,471	5	22,336	1,969	36,738
b) Middle	24,185	42,764	...	19,266	4,406	90,621
c) Primary	82,914	259,663	...	61,416	4,385	408,378
d) Pre-Primary	537	585	...	2,525	527	4,174
Total	114,593	308,483	5	105,543	11,287	539,911
Schools for vocational Education	617	60	...	923	513	2,113
Schools for Special Education	146	3	1	150	5	305
Schools for Other Education	3,597	2,890	...	96,227	1,101	103,815
Total of all Types	121,438	311,472	244	206,487	13,815	653,456

Source : Adapted from Ministry of Education and Social Welfare, Government of India. *Education in India In 1970-71* (New Delhi : The Controller of Publications, 1978), pp. 22-87, Table III.

Spatial Aspects of Urban Systems : Cases from Karnataka

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Introduction

The paper purports to present some crucial spatial aspects of urban areas, not in the traditional way, but in a slightly different and in a comprehensive way. The essential feature presented is spatial but the cases themselves represent varied spatial aspects such as spatial growth processes, structural relationships, employment, and urban interaction.

In all, there are five cases drawn from studies on Bangalore, Mysore, and Coorg towns and they represent four sectoral concerns in urban dynamics. The cases not only form the basis for spatial perspectives that can be drawn but also for spatial behavioural perspectives that are a corollary of such studies. Significantly, however, they help us gather comprehensive perspectives on the internal organisation of space within, and in, urban areas (urban spaces and urban localities).

An Ecology Related Observation

Geographical enquiry into internal spatial organisation with urban centres is very much influenced by the ecological studies of the West. Yet it is known that for two specific reasons their (rather methodological) applications in the Indian context bring in inferential problems :

> Factors defining territorial or social area characteristics are not the same as in the West (groups' relative ranks in the social order, traditional caste and class differences, and the typical spatial arrangement of economic forces, for example), and
>
> Market forces shaping spatial arrangements are being induced by deep seated social and cultural processes.

These inferential problems have however been overcome by recent studies which take on as guiding principles the clues

to the complex interplay of various social, cultural, and political constraints in the evolution of spatial patterns in the country (for example : Raju, 1982a, 1982b : also see : Smailes, 1973 ; Sopher, 1973 ; Lewandowski, 1977 ; Gist, 1956 ; Alker, 1969). It may be pertinent then to quote Raju (1982b : 23-24) in this regard :

> The "scientifically respectable" technical handling of an enquiry without a proper understanding of the relevant historical and socio-cultural processes may produce results which are significantly divorced from real-world observations, which is exactly what has happened with Berry's study of Calcutta.

Hence we try as far as possible to understand these processes and then work toward a careful interpretation of urban system dynamics in the following minicases.

Urban Growth Dynamics : Growth Processes in Mysore City

Mahadev (1969 ; 19) considers the growth of Mysore as having taken place in four distinct phases : Restoration to rendition-1799 to 1881 ; post-rendition 1882 to 1902 ; Modernisation and rapid growth—1903 to 1947 and post-independence period - 1947 onwards.* We summarise below the major characteristics of the spatial stages of growth since 1799, from Mahadev (1973 ; 33-38) :

> A first effort that helped people stay back in Mysore was the 22—kilometer canal to bring water from the cauvery to the city. Palace remained for a long time the primary economic base and a majority of the population of the time, lived by performing services to the palace. A market came into being to cater to the needs of the people from small beginnings. And the limit of the town was confined to a narrow circle around the core and the inner part was mainly residential for those who were directly or indirectly connected with the court. The entire town had an extent of about 8.5 km.
>
> By 1830, Mysore acquired the reputation as a dirty city owing to increased growth of population, and consequent congestion and over burdening of civic amenities. At this time, the British shifted the capital from Mysore to Bangalore for military, transportation, and administrative advantages, which removed the economic base and resulted also in mass population movement. By a partial restoration of princely residence and court to Mysore a few years later, Mysore acquired a thoroughfare, a shopping centre, a green belt of lawns and parks, and a sewage system.
>
> The physical extension however began in earnest only in the first half of the present century. An industrial component and an agrobased (silk, textile) industry came into existence. Organised effort in these years helped decongest the city by laying out new extensions. These extensions

* Gowda (1984) in his paper speaks of three phases. First phase 1799-1903 ; second phase ; 1903-1947 ; and third phase ; 1947 onwards. But essentially his views conform with most ideas presented here, though certain prespectives in relation to development are important.

were formed to relocate the people displaced by an epidemic of plague at the close of the nineteenth century and to accommodate the rapidly growing population. A generous open space between the core and the extensions was the characteristic feature.

With the advent of independence, and formation of a popular government, there was a sudden erosion of the king's authority and a complete shift of the power centre, to Bangalore. The political changes and administrative relocation adversely affected Mysore city: a growth rate of about three percent till 1961 and a half on the physical expansion. However, a motor cycle factory came into existence at this time. In the years of 1941-1971, the major activity in Mysore changed from service and supply of the palace to education and tourism. At present nearly 20 per cent of the land is either educational or administrative.

The events permit a thorough analysis of process of change with respect to urban land use changes. We may, in the city's spatial growth, deduce five essential processes and they are :

Accretion,

Retrogradation,

Scattering,

Skipping, and

Envelopment

These processes essentially operate in a two-dimensional space with reference to land uses. The urban from (circular), sector structure, polynuclear distribution or an amalgamation of all these make up and account for the location of various land uses, seeming chaotic but in reality organised. This adds however a third dimension : time. This then leads us on to the process of evolution of the spatial structure. To speak specifically of the processes, we have the following to say.

The spread of market, area, toward forming a CBD, extended initially in the form of linear accretion, resulting finally in a 75-25 per cent mix of commercial and residential uses. At present there is an intense accretion extending fast to neighbouring areas, slowly converting itself from linear to nonlinear characteristic.

The leap-frogging of land uses altering the overall pattern of land, use, has ushered in a decay of functions which in turn has brought in a retrogradation or disappearance of certain land uses with new ones taking their place : a once prosperous commercial area may degenerate into a second rate shopping area, or into a lower—class residential area : Asoka Road and Chamundipuram respectively.

The nonlinear spreading of commercial and other uses has given rise to several nuclei, spreading out toward each other. Thus, scattering has filled up areas between two similar land uses, for example, CBD and Mandi Market and CBD and Vanivilas Market.

The process of skipping has indicated that there have been some obstacles to land use development, and this process is exemplified by the development of educational uses : Mysore University area.

The process of envelopment is discernible in cases where the spatial spread of one land use is surrounded by other land uses ; persistence of residential areas within commercial district is an example of this process.

Structural Relationships : Land Values in Mysore City

Land values or market prices of land at a point in time are a result of interplay of a number of factors in a given urban setting. They express a spatial structure, closely related to the distance from the centre of the city or town, to the plot size, proportion of area under residential use, and the population density in a locality. The relationships between these are intricate that they are a pointer to the dynamic nature of the urban areas.

It can be hypothesized that the land value which affects the land use is itself a function of feedback effects of land use, the intensity of use of the land, area of the plot of land, density of population, and distance from the city centre. This can be, for the sake of simplicity, written as :

Land Value = f(land, use, density of population, plot size, and distance from the city centre)

To elaborate the relationships, we may say :

The land value and land use are interdependent and the relationship is reciprocal. The land use characteristics and the intensity of use increase the land value. Since the intensity of use and the changes take place over a period of time, land value also appreciates over a period of time provided the intensity increases.

However, if we insist on a general impression that the land value increases with mere passage of time, we would be wrong since such an idea is conceptually ill—founded. It is because the increase in land value is due mostly to the inflationary tendencies of the currency.

In Mysore, as in most Indian cities, urban land is not purely commercial as there is always a mixture of land uses. The land value is generally dependent on the ratio of this mixture. However, with increasing rotios of commercial use in a given mix, land value also increases.

Factors such as the physical distance from the city centre, topography, and plot size remain constant for a considerable length of time, while the zoning regulations, accessibility, intensity of use, type of use, and desirability undergo changes with the passage of time. Land values and their spatial structures, over time, are amenable to quantification, and also they can be measured in terms of relationships to factors considered as causing changes. The use of correlation coefficients and stepwise multiple regressions in the case of land values in relation to distance from the city centre, area under residential use, size of plot and density of population for the years 1941 to 1971, yielded the following.*

* Lv = Land Valve; D = distance from the city centre; Pr = percent/the area under residential use; Ps = size of the plot ; Dn = population density.

$$1941\ Lv = 322.05 - 48.85\ D - 93.66\ Pr - 18.33\ P_s + 0.01\ D_n$$

$$1951\ Lv = 242.13 - 37.51\ D - 92.21\ Pr - 6.23\ P_s + 0.05\ D_n$$

$$1961\ Lv = 274.28 - 38.78\ D - 89.44\ Pr - 12.49\ P_s + 0.02\ D_n$$

$$1971\ Lv = 249.70 - 15.54\ D - 125.17\ Pr - 11.39\ P_s + 0.02\ D_n$$

In arriving at these results, data regarding land value and the four variables were standardized using a SPSS computer program and the standardized data were then used in further analysis. The spatial and temporal variations in land value were calculated and correlation coefficients, given in table 1, were obtained to identify the relationships between land value and the four independent variables. The following inferences may be drawn from the results obtained from the statistical applications.

A strong negative correlation is evident between land value and distance from the city centre. Two reasons could be cited as causes of such a relationship; a medium sized urban centre such as Mysore is dominated by pedestrian traffic, hence nearness to centre of city is an advantage and the compactness of the city with lack of demand for fringe areas helps. It is however seen that the relationship shows a slight decrease in values with the passage of time and this indicates a weakening relationship between land value and distance from city centre. It is important to mention that in the last decade (1971-81) the compactness of the city has seen a gradual collapse with the result that there is now a great demand for fringe areas for residential development (south and northwest parts of Mysore city).

There is also a strong negative correlation between land value and residential land use (in percent of area). The land value increases as the per cent of residential use declines. This indirectly means that the degree of commercial residential mix may be of great importance in determining the land value. Here again, there has been a slight decline in correlation with time. This is due to an increase in land value on the fringes. The plot sizes vary with distance from the city centre : smaller in the city centre and increasingly larger towards the fringes—100 m² to 400 m² and more. As is evident, a negative relationship is seen between land value and plot size. And that this relationship is strengthening with the passage of time indicates : division and subdivision of land in and around the central city and growing sizes on the fringes due to accommodation of open spaces, and preference for larger homes. In tune with previous findings in the country, and elsewhere, land value and population density have a positive relation, indicating higher value land is more intensely used than the land of lower value. Thus areas of higher land value coincide with areas of high density of population.

Manpower Development : Employment in Coorg Towns

For the purpose of our analysis here, the entire system of towns in Coorg district is considered a (regional) subsystem, nested within the Karnataka regional urban system. The analysis of employment and occupational structure relies heavily on data for two census years only, 1961 and 1971. Comparable

data on employment and occupational structure are not yet available, in detail, for 1981.

Being part of the Malnad, Coorg has registered a low level of urbanisation in the last eight decades. The growth rates of urban population over the census years have shown a great increase from -34.55 per cent in 1901-11 to 22.1 per cent in 1971-81. The growth has attained an enormous level of 161.62 per cent in 1951-61 and then declined to 37.49 per cent in 1961-71 and now to 22.1 per cent. Thus Coorg, renamed Kodagu, has had the lowest decennial growth rate of its urban population (Census, 1981 : 53)

There are ten urban centres in Coorg, as against the eleven in 1971. This is mainly due to the reclassification of urban areas in the State. Mercara with about 25,000 population is the largest urban centre registering a growth rate in 1971-81 of 27.73 per cent. Virajpet is the second largest with about 12,000 people and a growth rate of 19.36 per cent. No other town has a population more than 7,000, the range being 2,000 to 7,000. Gonikoppal has registered in the last decade an enormous growth of 95.65 per cent and Kodlipet a mere 9.47 per cent in the same decade.

It is true that the pattern of economic growth, employment opportunities, and technological advancements are the dominant in shaping the size and structure of towns. The employment by different occupations (primary, secondary, and tertiary) for the 10 towns of Coorg indicates that there have been shifts in the levels of employment in certain cases. For example, Kodlipat has greatly increased its position both in terms of industry and services within among those constituting a group with tertiary activity as a major function; the shifts in position are discernible by the dispersion in 1971. Other conclusions that may be drawn are :

> No urban centre is predominantly secondary industry based (the highest percentage for 1961 is 28.51 in Gonikoppal, and for 1971 is 34.14 for the same town). The employment figures range from 3.54 to 28.51 per cent in 1961 and from about 7 per cent to 34.14 per cent.
>
> Except Hebbale with 81.83 per cent in 1971 and 89.54 per cent in 1961 the other towns have had between 1/25 and about one half of workers in primary activities. The lowest was in Gonikoppal and Mercara, 5.63 and and 8.17 per cent and 6.92 and 5.42 per cent in 1961 and 1971 respectively.
>
> Services account for by far the largest percentage of employment in these towns: in 1961 seven towns had more than half the workers in services and in 1971 only six towns had more than half the workers in the tertiary activities.

This brings us to a peculiar case of urban centres where service, tertiary component dominates the structure of the small urban subsystems. This can be explained only by the fact that all towns in the regional subsystem caters mainly to urban service functions to its hinterland. This fact is understandable because the entire district is characterised by plantation agriculture utilising modern implements and methods of cultivation (see Geetha, 1977 : 1978). The location quotient ranges between 0.08 (Hebbale) and 1.9 (Gonikoppal). Virajpet, Kushalnagar, and Suntikoppa with high location

quotients (1.9,1.8.1.4, and 1.1 respectively) are orientated toward transport, communication, and allied activities: yet none of these has considerable population in secondary sector of employment.

Functionally, all of them except Mercara, is monofunctional ; Mercara is bifunctional. Monofunctional towns are characterised by tertiary activities. Yet major source of income for the towns is still agriculture, about 86 per cent of the income is accounted for by this sector ; only 3 per cent of income is from industrial activities, and about 11 per cent from tertiary functions.

As for 1981, the percentage of workers is the highest in Cóorg district with 45.13. Male participation rate is also the highest: 58.57 per cent. The per cent of urban workers is about 36 ; of which primary activities account for 7.5 per cent, household industry 2.3 per cent and the rest by other activities, including industries other than household and services. Of the services those related to plantation equipment and machinery dominate followed by auto-repair and general engineering. Of the secondary activities, fruit processing, domestic utensils and furniture, and milling dominate. Of course, in primary activities forestry related activities and plantation dominate the economic scene.

Urban Interaction : Home-Work Place Relationships

Human movement is an important theme in urban system organisation studies since it brings out in clear terms the relationships between and among the parts of individual urban systems. What we are concerned with here is the short-run dynamics of intraurban travel with respect to home-workplace mobility in Bangalore.

Mobility research is now differentiated from migration research in that we have the need to differentiate between long run human movements (migration) involving rural to urban, and urban to urban area movements and human movements of short run characteristics involving two or more spatial positions (mobility) within a single urban centre.

Mobility is considered short-run because it involves smaller distances and repeated daily movements such as commuting within an urban centre. Urban travel is in this sense a *travel demand* facilitating a nontravel activity (a job in an industry, for example). This travel occurs with a 10-hour periodicity with two peak travel times, usually in the morning and the evening. It is also possible to have this periodicity in any part of a 24-hour day; example being travel generated by activity regulations such as *shifts* in industrial concerns.

The urban travel of the normal 10-hour periodicity may, for the sake of simplicity, be modelled as one involving two spatial positions and a short distance. The pattern defined by this working model is such that the trip is characterised by a single purpose ; house to workplace and back. The very same model can be repatterned to include multipurpose trips also.

The model illustrates the multipurpose movements of a single individual. Note in each case, there are two spatial positions and shorter distances of travel (Natarajan, 1984 ; Kumudha, 1984).

It is customary however to classify mobility into three types: social occupational, and spatial. While the social mobility involves a movement between two social positions, low to high status, occupational mobility involves two job levels, one occupation to another for reasons such as job satisfaction, increased monetary remuneration or promotion, and spatial mobility is between two spatial positions and short distances.

Given this background, it is the spatial mobility we are concerned with as this explains, first the spatial structure, and then the spatial behaviour via, usually, distance decay analysis. However, this spatial mobility can also provide us with insights on socioeconomic characteristics of the population which is engaged in intraurban travel. We see here only a few of these characteristic features (also see: Tewari, 1978; Rao and Tewari, 1979).

It is evident from Bangalore statistical data that most workers travel short distances for work, most of the trips are made to distance zones 2 to 4 kms. It is also evident, people locate themselves at distances close to theirwork spot, though some within live workplaces or at some distances away from the workplaces. There is a negative relationship between distance travelled and proportion of workers travelling. This relationship is negative exponential and that with increasing distances there is a decreasing proportion of visits, illustrating least effort principle in some measure. Relating workplace locations with average distances travelled by workers indicates that in the sample locations studied, no worker travels more than an average distance of about 5 kms, many travelling between 3 and 4 kms, and others only about 3 kms and below. The use of travel modes in getting to work by Bangalore workers, sample and average distances travelled with each of the different modes indicates that most workers get to work by foot (about one half), one-fifth get to work by bus (public mode), one-eigth by bicycles, one-tenth by modes owned by the institutions to which the workers are attached, and the rest, a small proportion, by private cars and other modes. It is also evident the workers who get to work by foot travel an average distance of about 1 km while those who get to work by bus a little above 4 kms, cycle about 3.5 kms, institutional modes 4.6 kms, and other modes within 2 kms.

The inference we may draw in relation to urban interaction through intraurban travel are several. To mention a few:

> The over all distribution of workers by home-workplace separation is one of decline in the number of workers with increase in the distance (Tewari 1978: 65).
>
> The average distance travelled for work by the sample workers works out only to a small distance, between 3 and 4 Kms while for individual workers it may vary from zero to about 20 kms and above.
>
> Apart from walk, the most frequent mode of transport is bus, followed by bicycles, institutional transports, and private vehicles. Among other influences one particular inference drawn by several studies is that: a larger proportion of the workers with higher incomes travels longer distances and use modes of transport involving greater maintenance cost (Tewari, 1978: 72) while some low income workers also travel greater distances by the fact of being placed at residential locations separated

by longer distances from the work places (*Natarajan*, 1984, Kumudha, 1984).

Retail Trade : Milk and Vegetables in Mysore

A similar spatial structure is *also* discernible in the context of retail trade, which is a good case *of urban* interaction. The objective here is to describe and analyse *briefly the marketing* system of milk and vegetables as *reflected in* the spatial organisation of the supply of milk and vegetables *to, and the intra*-urban distribution of these commodities in Mysore city. *Conceptually*, the spatial organisation and the resulting pattern of supply of commodities depends largely on producer behaviour *and the on* the marketing variable, the agencies and relations involved. Producer behaviour is contingent upon the location of production unit (farm), its size of operation, seasonality of production, *specialisation* and a host of others including marketing variable, while the latter is influenced by such variables as the government policy, incentives for production, intervention in the *marketing process and* transport. All of these together determine the *spatial organisation of supply*.

On the other hand, the *spatial* organisation of intraurban distribution and the resulting *retail pattern are principally* determined by the interrelations between consumers (public) and retailers (venders, peddlers, organised merchants). However consumer demand mainly depends on socioeconomic *characteristics (religion,* income, and so on) and results in *specific shopping behaviour which is* dependent on the urban structure variables such as *land* use, population density and the urban subsystem spaces such as *neighbourhoods* (Blokholt, Jansén, and van der Veen, 1983 : 9-10).

Retail systems are an important component of *urban* economic *activity* and reflect the level of development of the urban area studies. They are actively consumer-oriented and hence their structures reflect the socio-economic status of the consumers and provide a framework for both trader and consumer *spatial behaviour*. In a dynamic framework however the locational patterns of *retail* system *establishments and* the consumer travel patterns tend to be *irregular and inefficient, due mainly* to the unplanned growth of the city or town system (Sastry, 1981 : 57). The retail systems also possess a hierarchy of their own that :

> Generally, the city or town is *bi*-focal, and more often, multi-focal, in which case there are two or more retail trade cores ; and these retail activities mostly conform to the western modes of the retail structure, more so in the retail concentration (Berry, 1963).

> The hierarchy that can be identifiable is either a stepped one (Berry and Garrison, 1958) or a continuium (Rushton, 1969). Swaminathan (1979), using the clustering technique, identified a five-tier hierarchy *and* Brush (1953) a there-tier hierarchy. And from the study of Sastry (1981), it is evident that the retail structure continues to change with varying intensity in relation to the consumer habits and life styles. Changes have been identified in cases of the Karnataka urban system as well.

With respect to Mysore City, the facts above are applicable; the present case

does bring this out well. On other aspects, the case fares even better, as we shall see.

For example, there are two different ways by which the vegetables and milk are channelled from producers to consumers. There are of course some similarities; in both there is a private chain and a cooperative chain. Whereas there is a link between private and cooperative chain in the case of vegetable retailing, there is no such link in the case of milk retailing. The inferences that can be drawn are several, and they are encapsuled below.

> The retail system of Mysore city is characterised by a formal and an informal sector; and these coexist side by side.
>
> The retail system of vegetables is such that the market places are of primary importance; next in importance are the street sellers, mobile and sedantary. For milk, it is slightly different; shops milkmen and door-to-door vendors are the only outlets.
>
> The trade sectors operate generally twice in the day; morning and evening. This is because they both are perishables. However, in the case of vegetables a classification of four types are possible: day markets operating the entire day, morning and evening markets catering the peak purchases, morning and evening markets, which locate themselves at places convenient for consumers.
>
> A hierarchy is discernible of market places when we consider the entire qualitative aspects. Berry's observations regarding retail activities are apparent in Mysore. Structural elements like the ribbon developments, and specialised business centres exist as reflected in the hierarchy of retail system.
>
> The composite system is clearly affected by the factor consumer behaviour. Socioeconomic group differences, varying tastes, and preferences influence the complex system to such an extent that subsystems can be recognised.
>
> Consumer behaviour with regard to shopping for vegetables is characterised by an obvious preference for daily local purchase. The fact that intraurban distribution system functions satisfactorily and correctly seem to be justified. Clear differences are visible with regard to milk retailing; private business of milk booths and milkmen predominates the organised cooperative system. Milk being a naturally standardized product, there arises an uniform attitude of consumer behaviour, no matter whether the supplier is the formal sector or the informal sector.

The Reprise

We have by analysing five different cases of urban internal organisation been able to gather a gamut of spatial structure and behaviour related ideas. We have also seen how they differ, and are similar to, western urban areas. In many respects the cases represent a mix of the western and nonwestern characteristics but yet they remain familiar to all of us, because we live with them. Also,

there are some unfamiliar characteristics to some among us with non-geographic social science training. That is perhaps the strength of the paper. We hope those with different training, but within the social science realm, would appreciate our viewpoints. If this paper generates that appreciation we desire, then we would know we have succeeded in getting across to you.

TABLE 1

Relationship between Land Value and for independent variables

Year	Distance (D)	Land Value and Residential use (Pr)	Plot size (Ps)	Population Density (Dn)
		(Correlation coefficients)		
1941	-0.737	-0.702	-0.394	+ 0.488
1951	-0.731	-0.698	-0.368	+ 0.523
1961	-0.714	-0.667	-0.444	+ 0.490
1971	-0.613	-0.671	-0.509	+ 0.473

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Visakhapatnam and Vijayawada : a study in Con trasting Patterns of Urban Influence on Surrounding Rural Areas

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This paper reports on observed contrasts ingradients of urban influence of Visakhapatnam and Vijayawada towns, two Class-I towns in Andhra Pradesh, on surrounding rural areas, based on the 1961 and 1971 Census data. No hard rationale could be furnished to restrict this comparative empirical analysis to only these two towns and it is only fair to say that their choice was largely arbitrary. Nevertheless, some considerations underlying their selection may be set-forth. Visakhapatnam and Vijayawada were alternatively the second and their largest towns in the 1961 and 1971 Census according to size-Classification of Andhra towns. The towns differ in their functional roles, too. Visakhapatnam is primarily an industrial town with concentration of major heavy industries whereas Vijayawada is primarily a center of trade and commerce, with a sprinkling of small and agro-based industries. The objective, therefore, was to examine whether different urban influence processes were associated with these two functionally different Class-I towns.

Since gradient constructs of urban influence are traceable directly or indirectly to the ecological theory of urbanism and urbanisation, the theoretical principles underpinning gradient models of urban dominance processes will be briefly outlined immediately.

1. Ecological Theory of Urbanism and Urban Influence Gradients

The first methodological assumption of gradient notions of urban impact phenomena is that towns and villages do not represent socio-cultural isolates for most analytic purposes in community studies. Rural and urban communities exist in a matrix of forces, processes and interactions occurring within and among

communities, and it is the macrocosmic configuration of inter-community dynamics which constitutes the most useful and meaningful framework of analysis. Meaningful dimensions of this micro-cosmic inter-community context must be identified and utilized in empirical researches. As Professor Gutkind (1962 : 148) remarks : "If we want to create a dynamic equilibrium of settlements, we should think and act in terms of processes, not according to notion of static entities (towns and villages)". If single communities are not to be regarded as independent, closed, self-contained entities but only as open, interdependent, interacting and interpenetrating systems, one will be forced to visualize the possible modes or mechanisms of community interaction and interpenetration processes. A few institutionalised mechanisms of community interactions will come immediately to mind : (1) marriage and kinship ties; (2) commutation and migration of population ; (3) mass media of transport and communication, and extension of information fields through the movie, press, and radio, etc ; (4) economic networks of trade, commerce and market operations ; and (5) organizational linkages furnished by political parties, professional associations, trade unions, and caste organizations, etc. which have horizontal or multi-community bases of operation. The increasing importance of these channels of inter-community interactions has led Professor Kauffman and Singh (1969 : 546-551) to plead for a reexamination and redefinition of the concepts of "rural" and "urban" because of the convergence of rural and urban ways of life and an increasing degree of interdependence between the city and the countryside. This hypothesis of convergence and interdependence is of direct relevance to the present study of urban influence phenomena. An extreme variant of this argument is Professor Gutkind's observation that "The centreless region is the next phase in the evolution of environmental structure (p. 59)...... The final goal, the centreless region, in which numerous small communities joined together in a densely knit social and economic structure organically serve the innumerable functions of daily life, is in my opinion, the logical and inevitable result of everything that has gone before. It is the natural result of the widening of the breakthrough into the realm of new ideas and possibilities". (Gutkind, 1962 :63).

Urbanism, according to Kingsley Davis (1970 : 120) constitutes a revolutionary force transforming the whole pattern of social life. It exercises its pervasive influence not only within the physical territories of urban centres but also radiates to the rural hinterlands, according to Davis. Spatial extensions of urban influences are assumed by several other writers. Defines as a distinct way of life, urbanism emerges, according to Louis Wirth (1938 : 1-24), from the contingencies and imperatives of size, density and heterogenity of human settlements. Urbanism's causation is inherent in the very growth processes of human settlements. As a distinct quality of life, cultural and behaviour, it is thus conceived as an emergent product of size-density - heterogeneity effects of population aggregates. While urbanism was conceived as an epiphenomenon of size-concentration factors, urbanization was defined as an extension of urbanism to non-urban or pre-urban settlements (Rajagopalan, 1977 : 101-113). In the recent years some of these notions were subjected to empirical verification. Sherbenou and Flango (1976 : 3-20) conducted an empirical test of population size as a surrogate measure and predictor

of urbanism, in which urbanism was also measured independently by a composite index. Their conclusion was that urbanism arises from two specific independent sources: (a) Orthogenetically with increase in the size of a population settlement; *and (b) heterogenetically through proximity* and access to a dominant urban center. Empirically equating urbanism with settlement size, Fischer (1975 : 1319-1341) sought to isolate and explicate casual mechanisms through which the size-concentration effects of human settlements bring about qualitative transformations in social, cultural and behaviour patterns. The causal mechanisms operating to translate the size-concentration imperatives into distinct qualitative models of life, according to Fischer are: (a) critical mass, (b) intensification (c) culture clash, (d) institutional completeness and (e) diffusion, etc.

The assumption that settlement size is an independent and essential cause of variation in community life and its characteristics is quite implicit in dichotomous and continuum constructs of rural-urban differences. (Benet, 1963-1964; 1-23; Yuan, 1964 : 247-260; Pahl, 1966: 299-327; and Oommen 1967 : 30-48).

The size concentration effects of population settlements have been examined with reference to income levels, income inequalities, wages, labour productivity, and racial and occupational composition, etc. by Richardson (1973), Gilbert Alan (1976), Richardson (1976), Gilbert Alan (1977), and Heworth, Long and Rasmussen (1978). Such approaches are classed as the ecological theory of urbanism and urbanization. Caroll and Wheeler's study (1966 : 64-80) establishes the relative importance of proximity to a metropolitan center as the source of urbanism *vis-a-vis occupation as an* alternative source. The authors tested the hypothesis that the rural non-farm population close to urban centres was different in social characteristics from the rural non-farm population which was not exposed to the urban influence. A number of social characteristics such as family size, employment status, socio-economic status, and educational attainment were compared and their test lends support to the hypothesis that relative proximity to an urban centre is an independent, critical source of observed differences within the rural non-farm occupational category which they termed as a bifurcated category.

Since urbanism and urbanization emerge and proceed from towns and cities due to thier size-density effects and proximity to them, some form of distance decay would be expected in the spread of urbanism. There will, thus, be some spatial patterning of the urbanization processes. The gradient principle of urban dominance of rural areas captures this assumption of, distance decay and the consequent spatial patterning. The above outline suggests settlement size and proximity as two independent sources of urbanism A third factor mentioned in the literature is occupational composition. But this may not be independent of the first two sources.

Broadly and abstractly considered, urban impact constructs in Sociology are conceptual analogs of spatial diffusion models and central place of growth center concepts in geography, all of them focussing upon interactions among communities. Urban dominance hypotheses are of two kinds : (a) those relating to rural-urban relations ; and (b) those explaining inter-urban relations. By distinction, central place concepts are more inclusive in embracing

all possible categories of community interactions: rural-urban, andinter-urban, and inter-rural. However, both urban dominance and central place concepts share the assumption in common that community influences are non-uniform, asymmetric and hierarchical, meaning that certain communities influence more than they are influenced. In contrast, spatial diffusion theories are not cramped by this assumption of asymmetry and hierarchy in community impacts. However, in practice, they too are often compressed into hierarchical models. (Blaut, 1977 : 322-350). Some writers are inclined to treat even rural-urban relations as reciprocal, not asymmetrical (Rao, Prasad, C. R., 1969, 1970 ; and Sundaram, 1975) Asymmetry notion of inter-community dynamics attributes causal potency and primacy to size of settlement. The studies by Queen and Carpenter (1953 : 16-26), Duncan (1957 : 35-45) and Yuan (1964 : 247-260) demonstrate evidence that typical community characteristics are associated with community size. Sullivan, Su and Liu (1976 : 231-238) furnish evidence of a gradation of variation in vital events (i.e., demographic variables) the gradation being constructed on the basis of population size. Taking such vital events as pregnancies, live-births, induced abortions, spontaneous abortions and still births for 1966-68, they observed *consistent size-related urban-rural-tribal* gradients in Taiwan*.

In the present research paper, the size factor has been ignored and eliminated by choosing two Class-I towns and only the proximity factor or the distance decay principle has been taken as a critical source of variation in urbanization. The spatial distance principle, if properly operationalized, provides a convenient axis to depict patterns of incidence and variation in urban dominance processes. As mentioned, rural areas are exposed to urban centres and urban influences through proximity effects and other direct and indirect channels of information flow. As rural-urban interactions become more wide-ranging in a modern world of ever shrinking space and dimensions, an integrated nexus of rural and urban communities may evolve in course of time. This however, is only an uncertain long-term possibility, the materialisation of which is contingent upon the operation of several viable and durable long-term trends. However, what can more easily be foreseen for the immediate future is the diffusion of urban traits to rural areas at least in the vicinities of urban centres due to proximity effects. Before we undertake a brief review of the empirical studies on the diffusion of urban influences into surrounding rural areas, the situation obtaining in India may be summed up in the words of Jain (1975 : 75), as follows :

> "According to Western notions, towns are generators of change, and presumably change more rapidly than villages. Cities presumably will slowly but inevitably function as catalysts introducing changes in rural areas. However ... in India villages are psychologically and culturally not well disposed towards accepting changes and modernizing impact of the city is therefore, negligible. Villages

* The ecological theory of urbanism and urbanization has been criticisad. Pahl (1966) observers : "Any attempt to tie particular patterns of social relationships to specific geographical mileu is a singularly fruitless exercise". A moderate critique of the ecological theory is that of Lewis and Maund (1976) who doubt whether urbanisation processes operate a-spatially at the same intensity in all localities. It is suggested that different rates of urbanization produce inter-community differences displaying some degree of spatial ordering.

are so widely scattered and means of transport and communication are so inadequately developed that urban impact on village is limited ... Precise knowledge of urban influence is lacking. The relationship between towns and cities and surrounding areas is some what obscure. As yet the study of rural-urban relations has not been sufficiently explored. There are practically no studies of the dynamic influence of city and cultural diffusion in the rural hinterland. The various socio-ecological studies and socio-economic surveys confine themselves to city".

II. Review of Empirical Studies of Urban Impact

Rao, M. S. A. (1970), who studied a fringe village near Delhi, observes that the urban impact of Delhi is mostly limited to economic change, occupational structure, and consumption patterns.

In the study of the influence of three towns, Baroda, Jarod and waghodia on Rasulabad, a typical village in Gujarat, Janaki and Ajwani (1961 : 59) traced urbance influence to changes in land utilization, improved methods of cultivation, and occupational structure.

Gilbert (1975 · 325 : 333) holds that according to analyses 42 per cent of variance in levels of development index was explained by distance from the central city, the logarithm of distance explaining even more, upto 64 per cent. It was also seen that this relationship did not vary with the direction from the city or with the changing physical and economic environments encountered in different parts.

Gopi's (1975-76 : 311-314) investigation of the fringe community, Uppal near the city of Hyderabad provides some evidence in support of urban impact. The fringe area has a comparatively higher rate of growth of population, lower sex-ratio, higher proportion of population in the working age-group ; lower average household size ; a higher proportion of households in rented houses ; 50 per cent of the working force employed in the secondary and tertiary sectors of economic activity.

Subhashini Subrahmanyam (1975) studied a fringe village, called Devipuram near the urban centre of Kakinada in Coastal Andhra. A prominent streak of urbanism was discovered in the village. A diversified economic base, a widened sphere of action, a shift from ascriptive criteria to achievement criteria as status and power bases, etc. were reported in this village. Rural-urban contact was credited with a double-edged role-that of reinforcing tradition in its own idiom ; and dissolving tradition in its other aspects.

Venkatarayappa (1963 : 30-38) studied two villages, Lalitadripura located 5 miles, and Belagula located 7 miles from the city of Mysore, and found Belagula to be relatively more urbanized although more distant. The difference in the level of urbanization was attributed to factors such as availability of water, nature of soil, and land use, etc.

Goldsmith and Copp (1964 : 385-395) have investigated the effect of city size upon two agricultural characteristics, value of land and buildings per acre, and farm size in the U. S. countries and found the data on these two variables to be supportive of the spatially mediated structuring influence of cities.

Kathleen Brown (1971 : 52-55 (found rural residents living in the vicinity of large cities differing significantly from the rural residents living remotely from large cities, in terms of farm tenancy, off-farming employment, commercialisation of production, and farm income, etc.

Tarver's conclusions (1976 : 40-52) from a broad-based study representative of the physical features of the U. S. A. are that (a) population densities decline with distance from the city, and (b) distance has little effect on either farm size or average value of farm land and buildings per acre.

Bealer, Crider and Willitis (1974 : 334-349) examined the relationship between distance from urban centres and traditional morality in a large sample (N+11,645) of Pennsylvania rural adolescents. They found a positive correlation between distance and traditional morality, supporting the spatial gradient principle of urban influence. The predictive utility or urban dominance measures was compared with that of other commonly used explanatory variables including sex, race, father's occupation, parent's education, and religious preference, etc. The distance measures were generally equal to, or even more discriminative than any of those alternative predictive factors.

Slesinger (1973 : 350-361) found fertility differentials to be associated with distance measure of urban dominance. However, when duration of married life, religion, work experience, and education were controlled for in a multiple regression model, very little variance in fertility was explained by distance.

Tarver (1969 : 356-367) also related fertility variations to distance measures of urban dominance and found the gradient principle of ecological theory to be useful.

III. A Comparison of Urban Gradients of Visakhapatnam and Vijayawada Towns

In this part of the paper we present the results of an empirical test of the gradient principle for the towns of Visahapatnam and Vijayawada, using the data available in the village Directories of the 1961 and 1971 District Census Handbooks. The test covers a large number of village characteristics—population factors, village facilities, and occupational particulars, etc. The selection of Visakhapatnam and Vijayawada towns in Class-I was mainly arbitrary and purposive. One assumption underlying the purposive selection of Visakhapatnam and Vijayawada towns is that differences in the nature of their respective rural hinterlands as well as differences in the functional character of the towns will probably cause variant urban dominance patterns to be associated with them.

The analysis did not adopt a rigorous operational definition of rural hinterlands. Although Visakhapatnam and Vijayawada are the major towns in their respective districts* it was not assumed that the whole area of the district should be treated analytically as the hinterland of the town. A smaller space than the district's area was to be thought of. The census information was used as the basis to delimit the rural hinterlands of Visakhapatnam and Vijayawada. The District Census Handbooks furnish information on distances of Villages from the nearest urban centre. There are 51 inhabited villages in the Visakhapatnam

* There are 15 and 16 towns respectively in Visakhapatnam and Krishna districts.

district whose distances were measured and recorded with reference to Visakhapatnam town. Similarly, there are 104 inhabited villages in the Krishna District around the town of Vijayawada whose distances were reported with reference to Vijayawada itself. These 51 and 104 villages were, therefore, chosen as representing the respective rural hinterlands of Visakhapatnam and Vijayawada towns. The range of the village distances of the Visakhapatnam hinterland is from 6 to 26 kms., and the average village distance from the town is 19.14 kms. (the standard deviation of distance is 5.15 kms.). The 104 villages around Vijayawada vary in distance from 6 to 58 kms., the average distance from the town being 26.83 kms. (the standard deviation of distance is 13.67 kms.). The difference between the two towns in the average distance of villages located around them is statistically significant, the t-value of mean differences ($\bar{X}_1$ - $\bar{X}_2$ = 26.83 — 19 14 kms) working out at 5.06. It is, therefore, inferred that the 51 villages of Visakhapatnam cluster more closely around the town than probably the villages around Vijayawada.

The Village Directories of the District Census Handbooks contain data on a number of village characteristics for each village, such as density, literacy, proportion of scheduled castes and scheduled tribes, and proportion of agricultural labourers, cultivators and so on. This detailed village data were utilized in testing the urban influence gradients. Percentages or average values for these village features were computed and used. It should be mentioned that the test results and our interpretations of those results are severely limited by the kinds of data available to us in the village Directories.

In the following pages a comparison of the rural hinterlands of the two towns was attempted as a necessary background for the gradient analysis and the interpretation of the results thereof.

The following rural hinterland differences are observable from the comparative data presented in Table—1.

The percentage of literates is significantly higher in the Vijayawada rural hinterland in both the years under comparison.

The proportion of scheduled castes to total village population is also significantly higher in the Vijayawada rural hinterland in both 1961 and 1971.

Another stable and striking difference between the rural hinterlands is in the percentage of cultivators to total village population. In both 1961 and 1971, the villages around Visakhapatnam recorded significantly higher percentage of cultivators (including female cultivators) than the Vijayawada rural hinterland. However, when the percentage of agricultural labourers including female agricultural labourers is taken, a reverse situation obtains. The proportion of agricultural labourers is significantly higher in the Vijayawada rural hinterland than in the Visakhapatnam hinterland villages. The combination of a lower percentage of cultivators and a higher percentage of agricultural labourers in the Vijayawada village is perhaps a reflection of the capitalistic turn of agriculture in Vijayawada rural hinterand, in contrast to a relatively more subsistance mode of agricultural production in Visakhapatnam villages characterised by a greater number of cultivators and a lower percentage of agricultural labourers, indicating probably

A Comparison of the Rural Hinterlands of Visakhapatnam and Vijayawada :

TABLE 1

T-Test differences of means between Visakhapatnam and Vijayawada rural hinterlands

Sl. No.	Variable Particulars	Means of			Means of		
		Visakha-patnam	Vijaya-wada	T-Value	Visakha-patnam	Vijaya-wada)	T-Value
		1961 (N=51)	1961 (N=104)	1964	1971 (N=51)	(1971) (N=104)	1971
1	2	3	4	5	6	7	8
1.	Distance to Town	19.14	26.83	3.88**	19.14	26.88	3.86**
2.	Density of Population	841.67	687.58	3.56	935.58	837.05	0.85
3.	Total Literacy Rate %	13.51	25.63	8.37	18.32	26.26	4.25**
4.	Proportion of Scheduled Castes %	7.55	13.72	3.24**	8.67	12.82	2.42**
5.	Proportion of Scheduled Tribes%	1.61	2.70	1.09	1.16	3.48	2.20*
6.	Household size	4.63	4.85	1.83	4.96	4.71	2.21*
7.	Worker to Non-Worker Ratio	1.24	1.15	1.15	0.72	0.80	1.96
8.	Proportion to Workers %	52.93	52.16	0.54	40.44	43.47	2.48
9.	Percentage of Female Workers to Total Population	20.42	20.01	0.34	10.98	13.25	2.26*
10.	Proportion of Cultivators %	33.53	15.10	10.55**	15.96	10.09	5.17**
11.	Percentage of Female Cultivators to Total Population	13.53	3.57	9.19**	3.76	0.30	8.51**
12.	Proportion of Agricultural Labourers %	9.61	22.73	8.94**	12.20	24.16	7.89**

13. Percentage of Female Agricultural Labourers to Total Population	4.64	11.78**	8.21**	5.25	11.05	6.60**
14. Labourer-Farmer Ratio	0.39	2.32	3.85**	1.31	3.10	4.69**
15. Workers in Mining, Quarrying etc. to total population %	1.34	0.03	3.93**	1.43	0.02	4.35**
16. Percentage of Female Workers in Mining, Quarrying, etc. to total population	0.32	0.69	0.88	0.40	0.56	0.40
17. Workers in Household Industry to total population %	1.92	3.91	3.94**	1.16	1.08	0.44
18. Percentage of Female Workers in Household Industry to total population	0.50	1.50	3.84**	0.15	0.27	1.97*
19. Workers in Manufacturing other than Household Industry to total population	0.27	0.93	1.47	1.74	1.59	0.26
20. Percentage of Female Workers in Manufacturing other than Household Industry to total population	0.03	0.17	1.06	0.10	0.18	0.80
21. Workers in construction to total population %	0.18	1.84	1.94	0.50	0.31	1.17
22. Percentage of Female Workers in Construction to total population	0.02	0.63	1.67	0.03	0.07	0.94
23. Workers in Trade and Commerce to total population %	1.15	1.67	1.43	1.34	0.96	1.94
24. Percentage of Female Workers in Trade and Commerce to total population	0.48	0.57	0.44	0.39	0.17	2.64
25. Workers in Transport, Storage and Communication to total population %	0.72	0.29	2.27**	2.68	0.89	4.96**

Sl. No.	Variable Particulars	Means			Means of		
		Visakha-patnam	Vijaya-wada	T value	Visakha-patnam	Vijaya-wada	T value
		1961 (N = 51)	1961 (N = 104)	1964	1971 (N = 51)	1971 (N = 104)	1971
26.	Percentage of Female Workers in Transport, Storage and Communication to total population	0.01	0.00+	2.27**	0.13	0.00+	4.47**
27.	Workers in other services to total population %	4.88	3.08	4.39**	3.68	2.21	3.36**
28.	Percentage of Female Workers in other services to total population	1.07	1.19	0.51	0.50	0.65	1.84
29.	Education	1.51	1.76	0.88	1.12	2.91	5.26**
30.	Communication and Transport	1.27	1.42	0.60	1.39	1.98	3.07**
51.	Electricity	0.24	0.37	1.63	0.35	0.69	4.22**
32.	Medical and Public Health	0.08	0.15	1.09	0.04	0.17	2.03
35.	Drinking Water	0.96	0.91	1.07	0.98	0.99	0.52
34.	Grand Score	4.24	4.62	0.70	17.33	6.74	1.10

* : Significant at the 5 per cent level (t_o = 1.96)

** : Significant at the 1 per cent level (t_o = 2.56) degrees of freedom = 1.53

+ : Zero values are the result of rounding off to two decimal places.

the presence of marginalised peasant cultivation using mostly the family labour, and little of wage labour.* The data on labourer-farmer ratio in the table show that there are 0.39 agricultural labourers per cultivator in 1961 in Visakhapatnam villages, in comparison, with 2.32 labourers per cultivator in Vijayawada rural hinterland. This comparison holds in the 1971 data also. The labourer-farmer ratio for Visakhapatnam hinterland is 1.31 in 1971 whereas it is 3.10 for the Vijayawada villages in the same year. This interpretation receives support when the relative differences in the percentage of scheduled castes, who preponderate in the landless agricultural labour component, is considered. As mentioned, the proportion of scheduled castes in Visakhapatnam hinterland is lower in both 1961 (7.55%) and 1971 (8.67%) than in Vijayawada villages in both 1961 (13.72%) and 1971 (12.82%), the differences in both the years being *statistically* significant.

There is a significantly greater proportion of workers employed in mining and quarrying in both the years in Visakhapatnam's rural areas than in Vijayawada villages. This may due to the presence of rocky hills and mines in Visakhapatnam hinterland areas.

The percentage of female workers in household industries is relatively greater in both the years in Vijayawada's rural hinterland.

While household industries employing more female workers is a mark of the Vijayawada villages, the transport, storage and communications sector seems to be relatively more important in terms of the percentage of workers (both male and female) engaged in the Visakhapatnam villages.

The percentage of workers employed in the service sector is also relatively more in Visakhapatnam villages than in Vijayawada villages in both the years of comparison. On a crude inference, limited to the data available here, agriculture and household industry appear as more important absorbers of labour in Vijayawada villages whereas mining and quarrying, transport, storage and communications, and other service sectors seem to be important labour users in the Visakhapatnam villages. The prominence of household industry in Vijayawada rural hinterland may be due to the fact that taking into account the whole of Krishna district in which Vijayawada is located, it has been found according to the 1971 census that more villages (54.0 per cent) of this district are electrified than in the Visakhapatnam (7.12%) district.** The female literacy rate in Krishna District is also higher, 14 per cent in 1971 in comparison to 6.5 per cent in Visakhapatnam district. Further, Krishna District is also relatively more urbanized (percentage of urban to total district population is 27.25) than the Visakhapatnam district (22.30%). From this rural hinter-

* See for a discussion of capitalistic and subsistence modes of agriculture, Alice Thorner; "Semi Feudalism or Capitalism? Contemporary Debates on Classes and Modes of Production in India", *Economic and Political Weekly*, Vol. XVII, No. 49, Dec. 4, 1983, Vol. XVII, No. 50, Dec. 11, 1982; and Vol. XVII, No. 51, Dec. 18, 1982.

** This can be seen from Table-I also. When arbitrary scores, were given to various village facilities, such as electricity, medical and public health, etc., depending upon their relative functionality and investment levels, the average facilities score for electricity in Vijayawada rural hinterland is 0.37 as against 0.24 in Visakhapatnam in the year 1961, and 0.69 as against 0.35 for Visakhapatnam in the year 1971.

land comparison we will now proceed straight to a comparison of the urban influence gradients, since we have no data available for the two towns that may similarly be compared.

Gradients of Urban Influence : Visakhapatnam and Vijayawada

Simple correlation analysis was used for demonstrating the gradients of urban influence on various rural hinterland characteristics. Treating the 51 villages around Visakhapatnam as one villages sample, and the 104 villages around Vijayawada as another comparable village sample, the values for the various village characteristics given in the Census report were computed either as scores or as percentages and averages as the case may be and were correlated with the distances of the villages from the town of reference. The coefficients of correlation of the village characteristics with distance are reported separately for Vijayawada and Visakhapatnam towns in Table-II and III. The tables contain the correlation coefficients computed for both the 1961 and 1971 census data. A comparison of the 1961 and 1971 correlation coefficients will enable us to identify the stable and the unstable urban gradients in terms of their magnitude and direction. Similarly a comparison can also be made between Table-II and Table-III for a given year a reference to determine whether the observed distance-mediated gradients in rural characteristics are town-specific or not.

We note from Table-II for Vijayawada that strong or moderately strong urban gradients consistent over time between 1961 and 1971 in terms of direction and magnitude obtain in respect of the village characteristics: density (-0.47 and -0.48), total literacy (-0.51 and -0.49), proportion of cultivators (0.60 and 0.55), labour-farmer ratio (-0.23 and -0.30), workers in manufacturing other than household industry (-0.24 and -0.22) workers in transport, storage and communication (-0.25 and -0 33), electricity (-0.52 and -0.44), communication and transport facilities (-0.22 and -0.20), and overall facilities score (-.20 and -0 25)*

The above results indicate that the percentage of cultivators to total village population in a village increases as its distance from the town increases, indicating thereby that agriculture assumes grenter importance as one moves away from the town. This is natural and expected. By implication, there is a reduced dependence on cultivation in the villages in the town's vicinity. It is also significant to note that the labour-farmer ratio is negatively correlated with distance implying that the agricultural labour component of the village population decreases progressively in the remote villages. The analysis also indicates that greater population densitites and higher rates of literacy prevail in villages near the town than in remote agriculturally oriented villages. A similar increase is noted in the percentage of workers engaged in secondary and tertiary occupational sectors-manufacturing, transport, storage and communication in village situated close to the town. This trend is in tune with the reduced importance of primary agricultural sector in villages located close to the town In the review of empirical studies, reference is made to the studies of Rao and Subhasini who speak of the economic and occupational changes brought about by urban influence.

* The assignment of scores to various village facilities was explained in an earlier footnote.

TABLE II

Coefficients of Correlation with distance from Vijayawada Town (N = 104 Villages) 1961 and 1971

Sl. No.	Variable	1961	1971
1.	Density of Population	—0.47**	—0.48**
2.	Male literacy	N.C.	N.C.
3.	Female literacy	N.C.	N.C.
4.	Total literacy	—0.51**	-0.49**
5.	Proportion of Scheduled Castes	—0.04	-0.00
6.	Proportion of Scheduled Tribes	0.24*	0.06
7.	Household size	0.15	0.10
8.	Proportion of Workers	0.34**	0.17
9.	Proportion of Female Workers	0.36**	0.18
10.	Proportion of Cultivators	0.60**	0.55**
11.	Proportion of Female Cultivators	0.58**	0.00
12.	Proportion of Agricultural Labourers	—0.25*	—0.18
13.	Proportion of Female Agricultural Labourers	—0.14	0.15
14.	Labour-Farmer Ratio	—0.23*	0.30*
15.	Workers in Mining, Quarrying etc.	0.05	0.00
16.	Female Workers in Mining and Quarrying etc.	—0.03	0.02
17.	Workers in Household Industry	0.03	0.02
18.	Female Workers in Household Industry	0.01	0.02
19.	Workers in Manufacturing other than Household Industry	—0.24	—0.22*
20.	Female Workers in Manufacturing other than Household Industry	—0.18	—0.14
21.	Workers in Construction	—0.06	—0.18
22.	Female Workers in Construction	0.09	—0.08
23.	Workers in Trade and Commerce	—0.09	—0.29**
24.	Female Workers in Trade and Commerce	0.03	—0.20*
25.	Workers in Transport, Storage and Communication	0.25	0.33
26.	Female Workers in Transport, Storage and Communication	0.08	0.10
27.	Workers in other Services	—0.15	—0.29**

Table II Contd.

S. No.	Variable	1961	1971
28.	Female Workers in Other Services	—0.03	0.02
29.	Educational Facilities	—0.06	0.20
30.	Medical & Public Health Facilities	—0.00	—0.05
31.	Electricity Facilities	—0.52**	—0.44**
32.	Drinking Water Facilities	—0.02	0.01
33.	Communication & Transport Facilities	—0.22	—0.20*
34.	Veterinary Hospital & First Aid Centres	N.C.	N.C.
35.	Overall Facilities Score	—0.20*	—0.25*

* : Significant at the 5 per cent level.

** : Significant at the 1 per cent level.

Table values of correlation coefficients for 104 degrees of freedom are 0.20 at the 4-5 per cent level, and 0.27 at the percent level.

N.C. : Not calculated.

TABLE III

Coefficients of Correlation with Distance from Visakhapatnam town (N = 51 Villages) 1961 and 1971

Sl. No.	Variable	1961	1971
1.	Density of Population	—0.04	0.03
2.	Male Literacy	0 02	—0.01
3.	Female Literacy	0.18	—0.11
4.	Total Literacy	0.07	—0.04
5.	Proportion of Scheduled Castes	–0.16	—0.06
6.	Proportion of Scheduled Tribes	–0.12	—0.13
7.	Household size	–0.10	0.11
8.	Proportion of workers	0.32*	0.02
9.	Proportion of Female workers	0.31*	0.10
10.	Proportion of Cultivators	0.49**	0.10

Table III Contd.

Sl. No.	Variable	1961	1971
11.	Proportion of Female Cultivators	0.42*	0.03
12.	Proportion of Agricultural Labourers	—0.17	0.13
13.	Proportion of Female Agricultural Labourers	—0.12	0.08
14.	Labour-Farmer Ratio	0.05	0.14
15.	Workers in Mining and Quarrying etc.	—0.19	—0.08
16.	Female Workers in Mining and Quarrying etc.	—0.23	—0.12
17.	Workers in Household Industry	0.13	0.14
18.	Female workers in Household Industry	0.12	0.04
19.	Workers in Manufacturing other than Household Industry	—0.04	—0·14
20.	Female Workers in Manufacturing other than Household Industry	0.03	—0.12
21.	Workers in Construction	—0.18	—0.10
22.	Female Workers in Construction	—0.17	—0.10
23.	Workers in Trade and Commerce	—0.02	—5.16
24.	Female Workers in Trade and Commerce	—0.06	—0.15
25.	Workers in Transport, Storage and Communication	—0.17	— 0.03
26.	Female Workers in Transport, Storage and Communication	—0.03	— 0.20
27.	Workers in Other Services	—0.26	—0.01
28.	Female Workers in other Services	—0.11	0.07
29.	Educational Facilities	0.04	0.07
30.	Medical and Public Health Facilities	—0.03	-0.06
31.	Electricity	0.06	0.09
32.	Drinking Water Facilities	—0.03	-0.05
33.	Communication and Transport facilities	—0.10	0.06
34.	Veterinary Hospitals and First-Aid Centres	—0.03	-0.03
35.	Overall Facilities Score	—0.03	—0.17

* : Significant at the 5 per cent level

** : Significant at the 1 per cent level.
Table values of correlation coefficients for 49 degrees of freedom are 0.27 at the 5 per cent level and 0.35 at the 1 per cent level.

Another noticeable trend is that there is more of development of village facilities in village surrounding the town than in more distant villages(refer to Alen Gilbert's observation here). The pattern of the correlation coefficients measuring urban influence gradients indicates a gradual urbanization process taking place in the villages situated in the physical vicinity of the town. There are indications in the data that there is a spatial order underlying the change taking place under the urban impact of towns on the countryside. This impact more visibly reflects in increasing densities and literacy rates in an increase in secondary and tertiary sector activities and in overall village facilities development, all conforming to the linear law of urban proximity effects. The negative correlation of village density with distance from the town as well as the *negative* correlation coefficients obtained in the case of agricultural labourers suggest that some depopulation of the remoter villages may be taking place as part of the urbanization of the country-side, with the rural outmigrants originating mostly from agricultural labourers tending to settle more and more in villages close to the town if not directly within the town. Lewis and Maund (1976 : 19-27) has referred to the processes of depopulation and repopulation as components of the urbanization of the countryside. Prof. Hathway (1966 : 34-35) observes that farm labourers move into non-farm industries gradually via the route of multiple job holding keeping onefoot in the non-farm labour force and the other foot in the agricultural labour force. According to him. it is an ad hoc method of achieving non-farm job skills, a type of personal unemployment insurance. This offers a plausible explanation for the higher porportions of village populations engaged in secondary and tertiary occupational sectors in the villages situated close to the town. From the development planner's standpoint, it is noteworthy that the more remote agriculturally oriented villages and characterised by low densities, low literacy levels, lower proportions of agricultural labour, and low village facilities development. Urbanization and urban influence may no doubt horizontally extend beyond the physical confines of an urban centre ; yet, the spread effect is limited in geographical space, a trend which is in agreement with Alan Gilbert's observation (Gilbert : 1975). In view of the spatially limited urban impact zones, growth centre strategies of development of hierarchies of settlement commend themselves to serious attention. A modest conclusion emerging from the results is that the urban impact of the town of Vijayawada does result in some restructuring of the village characteristics around the town. Inter-village population movements in the *town-ward direction* only, and not to the town perhaps straight away is an aspect of this urban dominance process. One may recall here the findings of the study of Uppal by Gopi.

In Table-II, one will notice that some distance-related gradients are consistent and stable in their sign from 1961 to 1971, although their values vary over time. Thus, for instance, household size has yielded a consistently positive correlation with distance, 0.51 in 1961 and 0.10 in 1971, indicating a weak urban effect of the town on this dimension. The proportion of agricultural labourers in total village population shows a declining trend as distance from the town increases (—0.25 in 1961 and —0.18 in 1971). This furnishes further evidence in support of the earlier inference that the remoter, agriculturally oriented villages are losing out populations who

migrate to repopulate the villages situated in the vicinity of the town, probably to take advantage of the multiple routes to employment as Hathaway, and Lewis and Maund argue. Therefore, a good surmise is that urban influence generates within the rural hinterland itself population movements (i. e., depopulation and repopulation) that display a regular or decipherable spatial pattern.

The participation of female work-force in manufacturing other than household industry becomes less and less as the remoteness of a village to the town increase (—0.18 in 1961 and —0.14 in 1971). Similarly, the percentage of workers engaged in other services displays a negative gradient with distance from the town (0.15 in 1961 and —0.29). Together these two results indicate that manufacturing and service sectors play relatively unimportant roles in absorbing rural manpower in the remote, agriculturally-oriented villages. These sectors are stimulated more only in those villages which are located close to the urban centre. In other words, an urban centre like Vijayawada exercises not only a generative or stimulative effect, but also an assortive and diversification effect on the occupational structure of its rural hinterland. Contrary to the "urban lure" hypothesis, it stimulates migration currents within the countryside whose destination is not the urban centre perset. It cannot be, therefore, described as a process of rural-to-urban migration but at best as a peri-urban, sub-urban or urban-fringe migration. Urban-fringe development thus takes place not alone by reverse migration from the urban centre to the outlaying rural areas but also by a migration stream originating in rural areas and termination at the *rural fringes* of an urban centre. It is a distinctive kind of rural-to-rural migration.

From this discussion on the urban gradients of the Vijayawada town, we will not proceed to examine the picture for the Visakhapatnam town.

Referring to the correlation coefficients presented in Table-III for the Visakhapatnam town, the following observations can be made:

1) In general, the distance-mediated gradients for the various village characteristics in the rural hinterland of Visakhapatnam are not stable either in their sign or in their size between 1961 and 1971. There are several fluctuations in the signs and/or values of the distance-related correlated coefficients.

2) In general, the urban impact data of the Visakhapatnam town display weak or insignificant urban influence gradients for the various village characteristics.

3) Urban dominance processes of Visakhapatnam seem relatively more unstructured and uncrystallised than observed for the Vijayawada town.

4) Even obvious characteristics as density and literacy have formed no gradients by distance in either 1961 or 1971. The proportion of workers (0.32 and 0.02), female workers (0.31 and 0.10), cultivators (0.42 and 0.03) had stronger gradients in only 1961 and there is a steep attenuation in their strength in 1971.

5) Individual village facilities and the overall village facilities score also display no cognizable gradients with distance.

In short, the Visakhapatnam town has failed to exercise any generative or stimulative or restructuring urban influence on its surrounding rural hinterland, although the villages are more closely scattered in space around the town, by comparison.

IV. Discussion and conclusion

The two test cases of urban influence gradients compared and contrasted in this paper, one with reference to Vijayawada, a growing town of commercial importance, and the other with reference to Visakhapatnam a fast growing industrial town, bring to light noteworthy variations in urban dominance patterns. Firstly the rural-urban community complex of Visakhapatnam seems to be loosely integrated. The urban impact on the rural hinterland appears to be weak or at least uncrystalized. There was no definite gradient formation in even such obvious characteristics as density, literacy and village fecilities, etc. Further if any gradients have formed at all in 1961 for Visakhapatnam, these have not remained stable in strength or direction with the passage of time. It looks as though Visakhapatnam exists as an urban industrial island surrounded by an unaffected or unresponsive rural hinterland. It appears that urban industrialization that is heterogenetic and unrelated to the surrounding rural areas is not a source of generative or assortive or restructuring influence for the surrounding rural areas. Ramakrishna Mukherjee has observed this to be true of the Steel town of Durgapur and the mining town of Giridh in his earlier investigations (1965) but it will be remembered that Durgapur is an artificially established steel town and therefore may not have developed a network of rural relations. But the case is different with Visakhapatnam which has a longer history of existence, and an uneven course of growth and development with major industries pouring into it in a quick succession. It will be recalled that Visakhapatnam had a size rank of 3 among the towns in the state of Andhra Pradesh in 1961, with Vijayawada occupying the 2nd rank, but in the 1971 Census classification of towns in the State Visakhapatnam has climbed to the 2nd rank position superceding Vijayawada which was scaled down to the third rank. The population growth as well as the industrialization of the town of Visakhapatnam was considerably high and rapid by 1971.*

* The inter-decadal population growth rates for the two towns from 1951 to 1971 are as follows :

Census Year	Visakhapatnam		Vijayawada	
	Population in persons	% of Decade Variance	Population in persons	% of Decade Variance
1951	108,042	53.81	161,198	87.04
1961	211,190	95.47	234,360	45.39
1961	350,467	72.10	344,600	47.04

The rapid growth in the population of Visakhapatnam in the recent decades was largely or primarily not due to migration from rural areas of the district. In fact there was considerable influx of population into the town from all over the country due to the various industries established during more than two decades (Rao 1972, and T. P. T. seminar report). On the contrary, Vijayawada has all along been primarily an important trading and commercial town with some limited industrialization taking place in the past few years. It is the chief trading centre for the agricultural produce of the district, and agro industries predominate in its industrial establishments. Functionally it is characterized primarily as a service town followed by trade and commerce, and industry (V. Pothana, 1979). In their recent survey of Vijayawada town, Prakasa Rao and Ramachandran (1975 : 255) report that nearly 75 per cent of the town's residents were migrants and out of this migrant population 44 per cent were within the town region, and 21 per cent came from villages outside the town region but within the State.

Thus in terms of migrant population and their native connections and in terms of its function as a service-cum trading and commercial town for the district's agricultural produce and in terms of its agro-industries, Vijayawada has probably established a more intense, viable, and varied net-work of rural-urban relations with its rural hinterland than Visakhapatnam could have a chance to. It is our contention that heavy and major industrialization of an urban centre functionally alienates the town from its rural hinterland. In contrast to Visakhapatnam, Vijayawada presents a picture of well-formed and stable urban influence gradients for some village characteristics. This contrast between the two profiles, which would perhaps emerge in bolder relief if we had more detailed primary data on the villages, can be explained, in terms of differences in the nature, functions, characteristics and growth histories of the two towns.

The rural hinterland comparison presented before may also provide supplementary insights of fragmentary nature. Visakhapatnam is situated in the midst of the countryside which is predominantly underdeveloped agriculturally and otherwise. Reference was already made to the subsistence type of agriculture in the Visakhapatnam villages and the capitalistic agriculture in the rural areas of Vijayawada. Subsistence agriculture leaves little surplus for export and marketing and thereby leaves no surplus money in the hands of the villagers which could be invested in their own villages or in the nearby town. Vijayawada is the seat of minor and small scale and processing industries. Probably many of the investors in these undertakings came from the rural areas. We have some evidence from Prakasa Rao and Ramachandran about money inflows and money outflows between Vijayawada and its surrounding areas. The raw materials for these industries were to some extent drawn from the surrounding rural areas and the finished goods flow from the town into the rural markets. Further it is situated in the midst of an agriculturally prosperous region and is well connected with its rural hinterland by canal, road, and railway systems. These factors may have helped the Vijayawada's greater articulation with its rural hinterland than it was possible for Visakhapatnam.

In short, the nature of the rural hinterland and the functional character and

growth history of the town, the crucial factors determining rural-urban *relational* are *patterns which are in turn reflected in some degree in urban influence gradients.* The orthogenetic development of a town having roots in the region itself is essential to the emergence of a cohesive *rural-urban* community nexus. Rural-urban *interaction* structures follow more or less the ebbs and tides of the growth dynamics of urban centres (Sundaram, 1975). Only certain functional types of cities seem to possess the potential for rural-urban integration.

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Urbanisation Trends and their Implications

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Urbanism, urban culture and urbanisation are not new to India. Great cities had flourished in the ancient and mediaeval periods of Indian history, and from the accounts of contemporaneous travellers, they were large, well-planned, affluent, and beautiful. But in one sense urbanisation is a recent phenomenon in India. Taking the proportion of urban population to total population as a measure of the level of urbanisation, one finds that even as late as in 1981 only about 24 percent of India's population was living in towns and cities. It bears mention that by the beginning of the 19th century, England and Wales and the Netherlands had already reached this level of urbanisation, and further, that, by the end of the last century almost all European countries, as also China and Japan had equalled or surpassed this level. Indeed, by 1851 the urban population of England and Wales had exceeded the 50 percent proportion[1].

The trenb in urbanisation in India since 1901 can be briefly narrated as follows: In 1901 there were 1834 towns with an aggregate population of 25.6 million, that is, about 11 percent of the country's total population. By 1931 the number of towns had increased to 2049, urban population to 33.0 million, and the level of urbanisation to 12.2 percent. The annual rate of growth of urban population between 1921 — 1931 was about 1.8 percent, while that of the rural population for the corresponding period was only 0.94. By 1951 the number of towns had increased to 2044, urban population was 61.6 million, the level of urbanisation was 17.6 percent, and the annual growth rates of urban and rural populations were 3.52 and 0.82 percent, respectively. The number of towns had increased to 2330 by 1961, to 2531 by 1971, and to 3245 by 1981. The urban population which was 77 6 million in 1961, went up to

1. These figurs are based on Harold Carter, *An Introduction to urban Historical Geography*, London, Edward Arnold, 1983, Table 4.3, were the original source is mentioned.

107.0 million by 1971 and in 1981 it was 156.2 million.The levels of urbanisation at these time-points were 18.3 percent, 20.2 percent, and 23.7 per cent. The annual growth rates of urban population in the inter-censal years since 1951 have been 2.3 per cent, 3.3 percent and 3.9 percent. It will also be in order to mention here that about 50.8 percent of the total urban population in 1961 was reported in Class I towns (that is urban places with population exceeding 1 lakh). By 1971 this percentage had increased to 56.2; and in 1981 it had reached 60.4 percent.[2]

Thus, it will be noted, that although India had a relatively late start in urbanisation, in absolute terms the number of towns and cities in the country and the size of its urban population were quite large. At the same time, the growth of urbanisation in India, particularly since 1951, has been at a fairly rapid and accelerating rate. All these features have important implications for urban development policy and planning. Some of these implications are indicated here. First, it is obvious that the existence of an urban problem sector cannot be wished away or ignored or even taken casually, although India still continues to "live in the villages". Second, the sheer financial costs of urban development which the Indian economy will have to bear will be astronomical compared with the costs which the early-starters had incurred at comparable levels of urbanisation. This is so not only because capital formation has in the meantime become costlier, but also because of the enormous difference in the scale at which urban infrastrucure and amenities were created by them and is to be provided by India even by barely acceptable minimum standards and norms. In absolute size India's urban population is almost as large as the urban population of the U.S.A. and the U.S.S.R. Finally, the rate of growth in recent decades has been such that urban development policies need to be formulated urgently and in a long-term perspective. The burden of delays will be damaging and the consequences of wrong policies may in some cases become irreversible.

Urban Policy Traditions and Biases

Prior to 1947 there was no urban development policy either for the country as a whole or for any Province or State or for any class of towns and cities. However, there was town planning as an administrative discipline for beautification and control of urban areas. But this was essentially in the nature of physical planning confined to such matters as land-use planning, housing development, provision of infrastructure, enforcement of building regulations and by-laws etc. This, too, was on a rather restricted and selective basis. For example, this was being done in the Metropolises for the Civil Lines, in the case of Contonments and railway colonies, or in a few capitals of princely States such as Baroda, Indore, Bangalore, Mysore and Hyderabad etc. In other words, only a small number of towns and cities out of the total benefited from these meticulous efforts. The large majority of towns and cities, particularly, the socalled native quarters of small

2. Based on: Report of the Task Force on Housing and Urban Development — 1. PLANNING AND URBAN DEVELOPMENT. Planning Commission, New Delhi, September 1983. (Mimeo) Table 2.1, p. 21

District towns did not have the benefit of such attention. Nevertheless, the point is worth making that at the time of independence our urban planners were familiar with traditional physical town planning practices, and elaborate institutional and related arrangements for these existed in the form of town planning Departments and town planning Acts. etc.

While many observers may not agree on the extent of detrimental effect this legacy had on the evolution of urban policy in post-independence India, few will disagree that the physical planning approach has been a dominant element in our thinking on urban development problems, and few can deny that the physical planning approach, though indispensable in town planning, is utterly inadequate for formulating urban policies.

Closely related to this tradition is the incorrect (implied) popular understanding of the urbanisation process, according to which it is a largely autonomous phenomenon which can be predicted by merely extending the trend projections of growth. At a slightly higher level of understanding it is considered as a phenomenon which can be easily explained taking a few explanatory variables representing the "push" factors and another few representing the "pull" factors. While at an elementary level this sort of approach may work, for prediction and planning purposes the model has to be more elaborate. The lack of understanding of the precise details of the urbanisation process is a major constraint in formulating urban policies.

There is also a continuing bias against urbanisation, particularly against the growth of large towns and cities. One is tempted to say that this is an emotive issue, and as long as it remains such, a proper perspective on urbanisation problems and policies will not emerge.

Plans, Policies and Programmes

At the national level urban development policy, to the extent that it can be said to exist, is formulated by the Planning Commission and the Ministry of Works and Housing. But unlike the industrial development policy, the monetary policy, policies relating to exports, and imports, or even agricultural policy, on which seperate statements are issued from time to time, urban development policy does not have a seperate statement. It has to be read mainly from the Five Year Plans in which all urban development schemes are outlined and the proposed total expenditure is indicated. At the State level urban policy means implementation of the schemes shown in the national Plan documents. A review of these is attempted here.

In the first Five-Year Plan document the section on urban development focusses on housing in particular. In fact, the document does not have a separate chapter on urban development, and even direct reference to urban development trends are scarce. At one place it is mentioned in passing that large towns and cities have grown since the turn of the century. (p 12)[3]. And, in the context of the resettlement of refugees in urban areas, the document recognised that the capacity of the urban economy to absorb all of them was limited due to lack of scope for quick expansion. (p 644).

3. Planning Commission, G.O.I. The First Five Year Plan, New Delhi, 1952. All references to the First Plan in this paper are to this document.

The main chapter dealing with urban problems is the one on Housing in which it is stated: "The solution of the housing problem on a permanent basis has to be linked up with town and country planning" (p. 603). And in this regard two suggestions were made, namely, enactment of a national town and country planning legislation, and efforts to integrate rural and urban and agricultural and industrial sectors through comprehensive regional planning.

Though, as will be seen from the above, the economic and development—related determinants of the direction and trend of urbanisation in the country were appreciated from the policy point of view, the schemes and programmes proposed in the Plan had a strong physical planning bias: e.g. housing, slum clearance, strengthening of town and country planning, and laying down of housing norms and standards. On housing development the Plan recommended establishment of Housing Boards in all States, and of a National Building Organisation; and emphasised the need for providing housing loans/subsidies to the poorer urban inhabitants.

Regarding the physical aspects of Indian towns the document categorically stated that they had grown haphazardly (p 593); and regarded this as a direct consequence of "inadequate legal powers to control use of land and construction of buildings . . . (and) neither the State Governments nor local authorities have shown full appreciation of the situation or utilised such powers as they already have to arrest the unhealthy growth" (p 603).

In the Second Plan document there is a separate sub-section on urban development in the chapter on Housing.[4] To that extent urban development was accorded greater recognition in the Second Plan than in the First. However, the main thrust continued to be on housing, and, as in the earlier Plan document, housing shortage was viewed as a direct consequence of the rapid rate of urbanisation. Even as the First Plan, the Second Plan was quite clear on the point that the urban housing problem can be solved only if a broad view of the total development process is taken. The document emphasized the further accentuation of the housing problem can be avoided only if it is considered along with "the wider problem of the planning of urban areas and of their economic and other relationships with the regions which they are situated" (p 568).

In the Third Plan, a Central Sector scheme for the preparation of master plan for selected cities was initiated. The Plan document recommended the creation of a Central Housing Board, and emphasised the need for large scale land acquisition and development in towns and cities.[5]

The chapter concerned with urban development policy in the Fourth Plan document is captioned: Regional and Urban Development and Housing.[6] The Fourth Plan document dealt with urban

4. Planning Commission, G.O.I. Second Five Year Plan. New Delhi, 1956.

5. Planning Commission, G.O.I. THIRD FIVE YEAR PLAN, (Summary), New Delhi, 1961, and THIRD FIVE YEAR PLAN (Draft outline) New Delhi, 1960.

6. All references are to Planning Commission, G. O. I. FOURTH FIVE YEAR PLAN (A Draft outline), New Delhi, 1966.

development problems and policies more elaborately than did the earlier documents. It emphasized planned distribution of economic activity in space, with the implied policy of influencing along desired lines the rates of growth of towns and cities of different sizes. This emphasis was articulated in the document in the following words : "If planned urban development is to be undertaken and the lines along which various urban or potentially urban centres are to develop over the course of the next 10 or 15 years, there is need for a clear conception of the pattern of economic development and establishment of industrialisation which is to be followed in the disribution' location and size of various industrial and other undertakings" (p 569). Here we get a full-bodied expression of the ideas which the First and Second Plan documents were tentatively referring to as town and country planning orientation or regional orientation of policies for solving urban housing problems. However, unlike the concerns of the earlier Plans, the concern of this statement is not with housing problem alone but with urban policy and planning in general.

The Fourth Five Year Plan also made a departure from the earlier plans on the question of slum improvement. In place of slum clearance and relocation, it emphasized the need for the supply in slum areas of water and sewerage according to minimum standards, for paving of streets and provision of street lighting. The Fourth Plan also focussed attention on legislative and policy matters relating to urban land.

The chapter of the Draft Fifth Five Year Plan dealing with urban problems is entitled : Urban Development, Housing and Water Supply.[7] The Draft Fifth Plan's urban development objectives were broadly similar to those of the Fourth Plan. The Fifth Plan aimed at bringing civic services to an acceptable minimum standard; finding a solution to the problem of metropolitan cities in a regional framework; and promoting growth of small towns. At the same time, the Plan document mentioned the need for an urban land use policy in order to promote optimal land use and reduce/ prevent concentration of land ownership, check speculation and rising land values so as to make land available for housing for the weaker sections. In this context the document indicated using legal, regulatoty, fiscal and development measures to achieve these objectives. It will be in order to point out that the Urban Land (Ceiling and Regulation) Act of 1976 was passed during this Plan Period.

The Draft Five-year Plan, 1978-83 was prepared when the Janata Government was in power at the Centre. The chapter concerned with urban problems in this document is also entitled : Urban Development, Housing and Water Supply.[8] As far as the programmes and schemes are concerned, the difference between the 1978-83 draft Plan and the earlier plans is minimum. But the difference in the "thinking" on urban development (rather than urban policy) between this and earlier plans is worth highlighting. The following two quotations reflect the differences quite clearly :

"The thrust of the urbanisation policy during the next decade must, there-

7. Planning Commission, G. O. I. DRAFT FIFTH FIVE YEAR PLAN, 1974-79. Volume II, New Delhi, 1974.
8. Planning Commission, G. O. I. DRAFT FIVE YEAR PLAN, 1978-83, New Delhi, 1978.

> *fore, be to slow down and* if possible reverse the *rate of* growth of the metropolitan cities and *increase* the rate of growth of the small and medium towns". (p. 243)

> "In the final analysis the pace of urbanisation will come down to the desired levels only when the income levels and quality of life of the bulk of *the rural population* reaches acceptable levels". (p. 222)

As a package of measures to achieve the objective of restricting the growth of larger cities, the Draft document mentioned *provision* of infrastructure (water supply, communication, education, medical care, recreation and housing) in small towns on a *large scale. In addition* to this it recommended *giving* subsidies to *industries for shifting* to new urban centres and imposing a ban on location of new industries within certain limits of large cities.

The Sixth Five Year *Plan* (1980-85) also discusses urban development problems in the same chapter as housing and water supply. Its understanding of the *urbanisation process and* of the urbanisation problems in the country are stated as follows :

> "Urbanisation in India has grown at a relative slow rate throughout this century as well as in the last 30 years This is quite consistent with the overall pattern of development *that the* country has experienced where the proportion of people *engaged in agriculture* and non-agricultural pursuits have barely changed over the whole period. Despite a slow rate of growth, the country exhibits all the urban problems that can be found in any part of the world. More-over, *many* of the problems are aggravated by. the very low per capita income observed in large *cities*". (p. 394)

It is rather surprising that *the Sixth* Plan document *considers* a 3.5 per cent overall annual rate of urbanisation, and a more *than* 4 *per* cent rate of growth of cities above 1 lakh population, as *relatively* slow.

As for the thrust of urbanisation policy, the 1980-85 *Plan* did not pursue the thinking of the 1978-83 Draft that the *rate* of growth of metropolitan cities should be slowed down, if not reversed. *In* this context the 1980-85 Plan says :

> "In a country still largely rural and agricultural in character, it is natural that programmes for agricultural and rural development should receive the greatest emphasis *; in particular those for rural* employment creation and *assistance to the rural poor.* Urban development should, however, be seen as complementary to rural development and policies effecting the process of urbanisation should be such as to strengthen the links between towns and cities and their hinterlands". (p. 389)

The Sixth Plan, thus, only re-stated the dilemma of planned resource allocation between the rural and urban sectors, which most earlier Plan documents had also done, without, however, coming *anywhere close to giving an operational* approach for this. Nor did it provide a framework for *integrated urban and* regional planning.

Instruments and Interventions

Intervention by the State in the urban development process has always been extensive, and the traditional instruments for this have been land use control, building regulations and by-laws, and provision of civic amenities and services. Apart from these direct measures, other instruments are fiscal measures of taxes and rates to influence private investment decisions in urban areas. In India, however, the direct physical measures have been dominant. In addition to these conventional instruments of urban planning, the Plan documents sought to influence urban devolopment in a wider sense than town planning by means of other planned interventions. In this section the programmes and schemes for urban development in the different Plans since 1951 are discussed.

As was mentioned earlier, urban policy in India is mainly oriented towards planning of towns and cities. The approach is almost entirely physical and the planning concenrs are related to what is/should be in a town or city; rather than to how, why and in what manner urban areas are growing and what would/ought to be their future forms ? Thus, as will be seen presently, the focus of almost all urban planning interventions since the beginning of the First Plan has been on filling up gaps in the physical urban infrastructure; amenties, services and housing. It is not the intension of this critique to say that these concerns or the emphasis given to these are wrong. In any urban development policy they are necessary. However, they alone are not the only important elements of an *urban policy*.

One of the important instruments of urban policy since the Third Plan period has been preparation of detailed devolopment plans for individual urban areas. It started with the preparation of Master Plans for selected cities. Subsequently, it was extended to all cities with a population of over 3 lakhs under the Integrated Urban Development Programme (IUDP). Later, a programme called the Integrated Development of Small and Medium Towns (IDSMT) was initiated to cover about 200 towns with population of less than 1 lakh. The idea of a Master Plan for the development of individual urban areas is basically sound. Such exercises are usefull because they indicate future scenarios of growth and seek to provide essential urban amenities and services commensurate with the projected requirements. But in the case of the Master Plans prepared in the late 50s and early 60s and the plans prepared under IUDP and IDSMT, these expectations have not been entirely realised. The earlier Master Plans were mostly physical plans for infrastructure development on grandiose scales, but the proposals were not linked up with resource availability and realistic investment planning possibilites. In the case of the IUDP and IDSMT, the general complaint has been that because of lack of sufficient technical know-how at the State level, the plans drawn up are not of uniformly good quality. There is considerable scope for improvement, particularly in tying-up the proposed or expected future patterns of growth in individual urban areas with investment planning in the infrastructure and production sectors in the larger economy.

Another intervention in the urban areas since the beginning of planning has been in relation to the problem of the existence, emergence and growth of slums. In the initial phase when the town planners' abhorrence of ugliness in any from in the urban areas was still unconstrained, the

policy on slums was one of total eradication. In this approach to the problem, slum areas were to be cleared of all unauthorised and sub-standard structures and the population displaced in the process was to be relocated in multi-storied buildings constructed according to acceptable norms. Fortunately, planners were quick to learn a lesson form the repeated failures of such attempts. Subsequently, the approach changed from slum clearance to slum improvement, environmental improvement and provision of basic amenities in the slum areas according to acceptable minimum standards. An urban community development component was also added in the late 1960s to the policy on slums and blighted areas.

Another important intervention since 1951 has been in the urban housing sector. Different instruments are being used to realise the objective of better housing for all. In the First Plan document itself it was clearly stated that the responsibility of public authorities in the housing sector would be confined to provision of housing for the lower and middle income groups. Towards this end Housing Boards were constituted and construction of LIG and MIG housing with institutional finance was taken up.

Interventions in the urban land market were complementary to the housing policy, but their objectives went beyond the limited purpose of making cheap land available for housing of the economically weaker sections. Initially, the main instrument of land policy was land acquisition for public purposes. Later on land development and land allocation for promoting private and cooperative housing were added to the repertory of instruments. And finally, the urban land ceiling law was enacted to strengthen the position of the State and the poorer sections in the urban land market. Imposition of ceiling on urban land-holdings was expected to reduce concentration of ownership, make available more land for housing and other uses, prevent speculation and speculative increase in land prices. On the statute book the land ceiling act is extremely intimidating; however, in implementation it has been rather ineffective, if not farcial.

The interventions in the urban land market and all the instruments of urban land policy are better known for the enormous powers that have flowed from them to the politicians and bureaucrats than for the benefits to the public authorities and society. The well-to-do have also benefited to the extent of acquiring urban land at heavily subsidised prices. Neither land price could be held in check by these measures, nor has more land become available at reasonable prices than would have been otherwise available. On the other hand, it can be argued that the extent of distortions in the land market has increased.

Another direct intervention in the urban planning process has been the creation of separate Urban Development Authorities (UDAs) with extensive control and planning powers. This intervention is not universal in the sense that in addition to the 4 Metropolises only another 40 cities have these powerful planning bodies. In most cases where UDAs have been set up the older local bodies have been divested of all planning functions. It may bear mention here that in a number of other cases too representative local self-government institutions have been superseded and for years elections to such Municipalities and Corporations have not been conducted.

Mention may also be made of the policy intervention to prevent the tendency for industries to concentrate in a few large cities. The instruments used to prevent it are : ban or restriction on location of certain industrial activities in particular cities, planned growth of selected towns as counter-magnets, and giving generous incentives and concessions to industries in specified backward areas.

Summing up

Urban development policy in India is decided at the National level. This includes not only the overall approach to urban development but also all new programmes and schemes proposed towards that end. These programmes and schemes are worked-out in all essential details and the total anticipated expenditure by the Central and State agencies directly concerned with them are also finalised at the National level. Wherever necessary legislative and administrative arrangements required to realise the objectives of policy are also indicated, and, at times, even draft model legislations are suggested to the States. Consultation between the Central and State agencies concerned with urban development is a part of the decision-making process, but the roles of the former are known to be pro-active and dominating.

Given the nature of the planning problem, that is, its vastness and complexity, the process of policy formulation described above is not objectionable; the usual caveat of two-way flow of ideas, however, holds in this case.

Implementation of urban development policy is almost entirely the responsibility of the States.

Coming to the different facets of urban development policy, one finds serious inadequacies and weaknesses. Some important instances of those may be mentioned.

Although all plan documents have repeatedly stressed the need to cast urban develonment policy in a regional framework in order to integrate fully the urban infrastructure development plans with the development processes of the rural and urban activity sectors, very little has actually been achieved in this regard so far. There is no urban development policy as such; all that has come about in the past three decades is extensive physical town planning effort directed towards infrastructure development and provision of amenities and services in urban areas. Even the programmes and schemes undertaken with this objective in view are open to the criticism of being *ad hoc* since they are not, in a strict sense, integrated with the trends of development in the rural and urban production sectors.

With regard to the estimates of expenditure, it may be observed that only the expected outlays of the Central and State agencies directly connected with the urban development programmes and schemes are taken note of. The investment plans of other agencies such as the railways, the Electricity Boards, and large-scale public and private sector industrial units are totally left out. The point need not be laboured that this is a serious lacuna in urban planning, even if it be only for infrastructure development in towns and cities. Wherever these other agencies have (or do not have) investment plans of their own in the vicinity of urban areas, the realisation of the objectives of urban devolopment

plans will be effected. This lack of *integration in investment planning,* particularly when most of these decisions are taken at the Central level, is indeed surprising.

Apparently, the town planners' bias has been stronger and, because of *incomplete* understanding of the urban development *process, a comprehensive* urban development policy has not evolved.

To end we have a quotation from the Sixth Plan admitting lack of information for the *formulation of a policy on urbani*sation and urban development :

"The role of different sizes of towns and cities is not well understood; the relationship between urban and rural activities needs to be investigated further in order to improve the *links between urban and rural areas;* the comparative costs of providing infrastructure and services to large, medium and small cities need to be worked out" (p 397).

The above quotation ends as follows : "Finally, research is necessary to formulate policies to strengthen local bodies so that they can play a greater *role in the financing and implementa*tion of urban services".

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